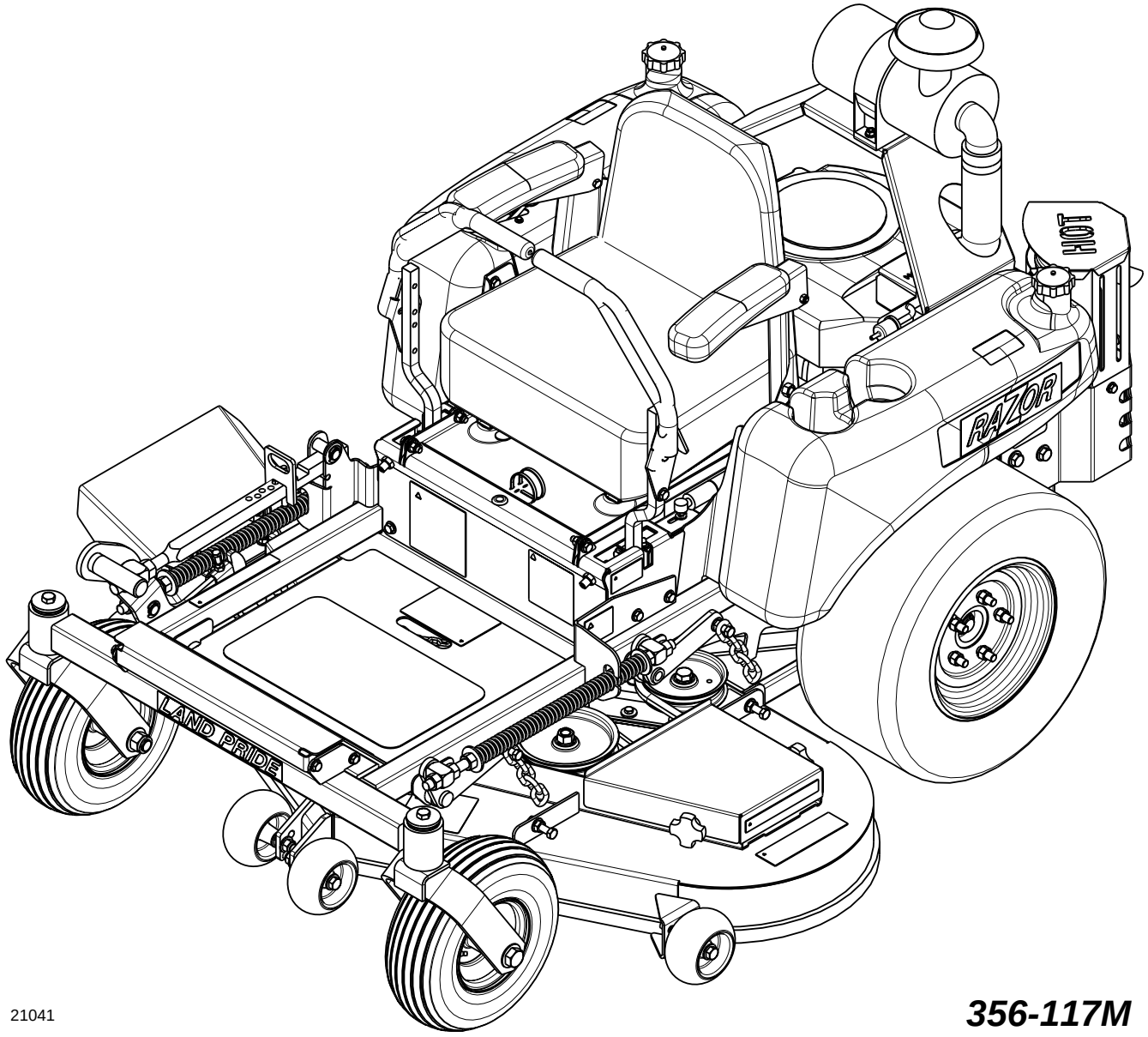
Table of Contents

Accu-Z

Razor® Pro

ZRP44 & ZRP52 Zero Turning Radius Mowers



21041

356-117M

Operator's Manual

Read the Operator's Manual entirely. When you see this symbol, the subsequent instructions and warnings are serious - follow without exception. Your life and the lives of others depend on it!

 7/14/08

Cover photo may show optional equipment not supplied with standard unit.

Table of Contents

These are common practices that may or may not be applicable to the products described in this manual.

Be Aware of Signal Words

A signal word designates a degree or level of hazard seriousness. The signal words are:

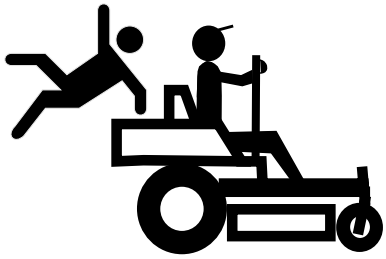
DANGER!
Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations, typically for machine components that, for functional purposes, cannot be guarded.

WARNING!
Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION!
Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

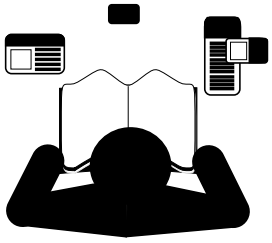
Keep Riders Off Machinery

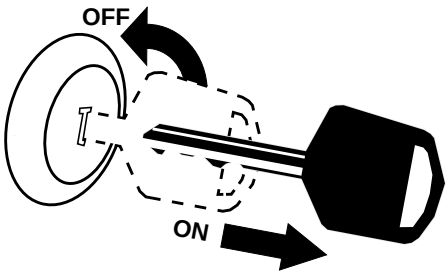
- Riders obstruct the operator's view, they could be struck by foreign objects or thrown from the machine.
- Never allow children to operate equipment.



For Your Protection

- Thoroughly read and understand the "Safety Label" section, read all instructions noted on them.





Shutdown and Storage

- Put mower in park, turn off engine, and remove the key.
- Store in an area where children normally do not play.

These are common practices that may or may not be applicable to the products described in this manual.

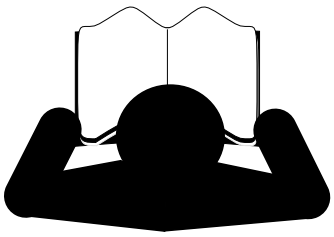
Practice Safe Maintenance

- ▲ Understand procedure before doing work. Use proper tools and equipment, refer to Operator's Manual for additional information.
- ▲ Work in a clean dry area.
- ▲ Do not grease or oil while in operation.
- ▲ Inspect all parts. Make sure parts are in good condition & installed properly.
- ▲ Remove build-up of grease, oil or debris.
- ▲ Remove all tools and unused parts before operation.

Safety at All Times

Thoroughly read and understand the instructions given in this manual before operation. Refer to the "Safety Label" section, read all instructions noted on them.

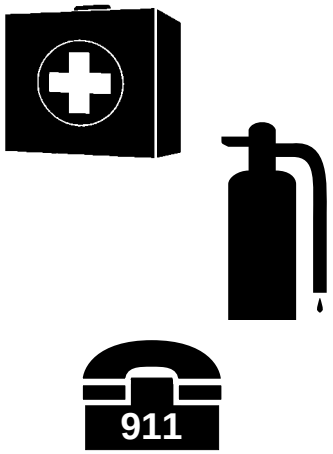
- ▲ Operator should be familiar with all functions of the unit.
- ▲ Operate mower from the driver's seat only.
- ▲ Do not leave mower unattended with engine running.
- ▲ Dismounting from a moving mower could cause serious injury or death.
- ▲ Keep hands, feet, and clothing away from power-driven parts.
- ▲ Wear snug fitting clothing to avoid entanglement with moving parts.
- ▲ Make sure all persons are clear of working area.



These are common practices that may or may not be applicable to the products described in this manual.

Prepare for Emergencies

- ▲ Be prepared if a fire starts.
- ▲ Keep a first aid kit and fire extinguisher handy.
- ▲ Keep emergency numbers for doctor, ambulance, hospital and fire department near phone.



Wear Protective Equipment

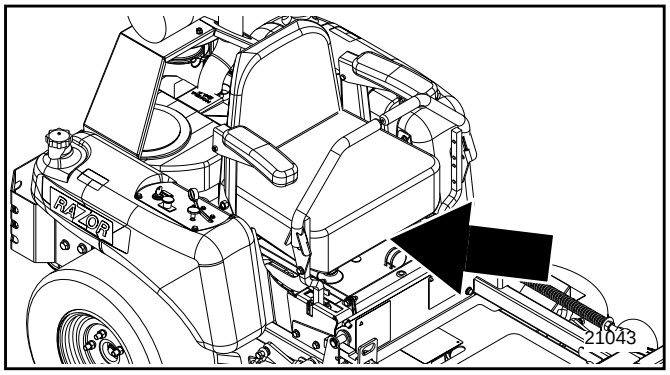
- ▲ Protective clothing and equipment should be worn.
- ▲ Wear clothing and equipment appropriate for the job. Avoid loose fitting clothing.
- ▲ Prolonged exposure to loud noise can cause hearing impairment or hearing loss. Wear suitable hearing protection such as earmuffs or earplugs.
- ▲ Operating equipment safely requires the full attention of the operator. Avoid wearing radio headphones while operating machinery.

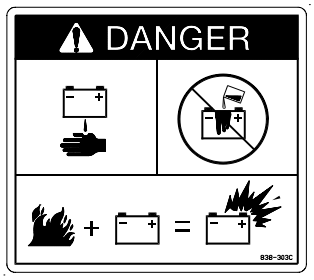
Avoid High Pressure Fluids Hazard

- ▲ Escaping fluid under pressure can penetrate the skin causing serious injury.
- ▲ Avoid the hazard by relieving pressure before disconnecting hydraulic lines.
- ▲ Use a piece of paper or cardboard, NOT BODY PARTS, to check for suspected leaks.
- ▲ Wear protective gloves and safety glasses or goggles when working with hydraulic systems.
- ▲ If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result.

Safety Labels

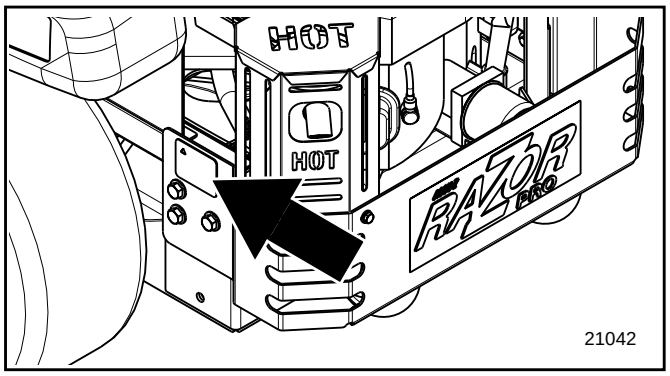
1. *Your mower comes equipped with all safety labels in place. They were designed to help you safely operate your mower. Read and follow their directions.*
2. *Keep all safety labels clean and legible.*
3. *Replace all damaged or missing labels. To order new labels go to your Land Pride dealer.*
4. *Some new equipment installed during repair requires safety labels to be affixed to the replaced component as specified by Land Pride. When ordering new components make sure the correct safety labels are included in the request. To order new labels go to your Land Pride dealer.*
5. *Refer to this section for proper label placement. To install new labels:*
   a. *Clean the area the label is to be placed.*
   b. *Spray soapy water on the surface where the label is to be placed.*
   c. *Peel backing from label. Press firmly onto the surface.*
   d. *Squeeze out air bubbles with the edge of a credit card.*

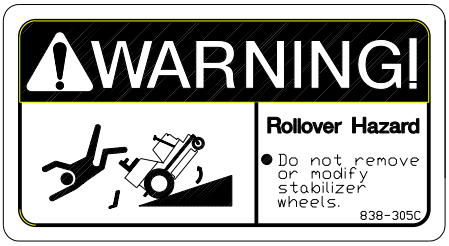




838-303C

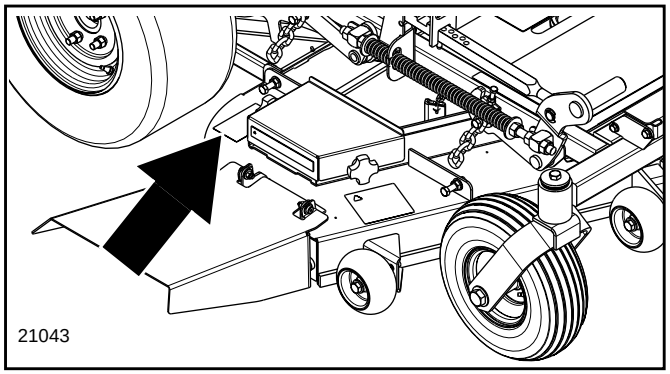
Danger: Battery
(Beneath Seat)

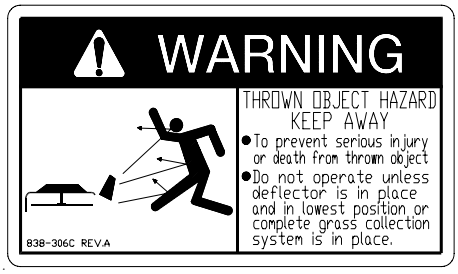




838-305C

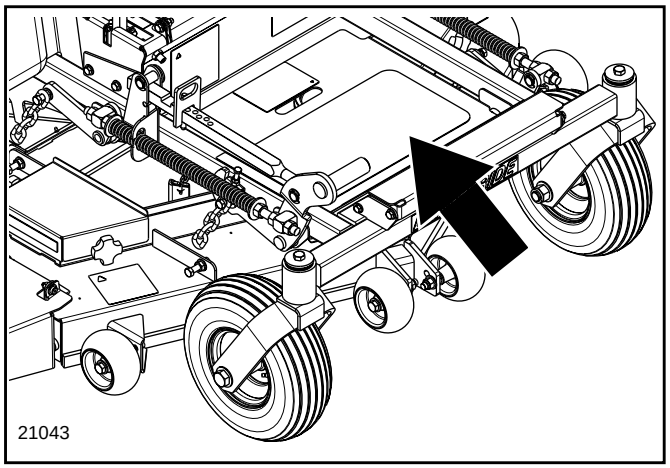
Warning: Rollover Hazard (Beneath Bumper on Back of Frame)





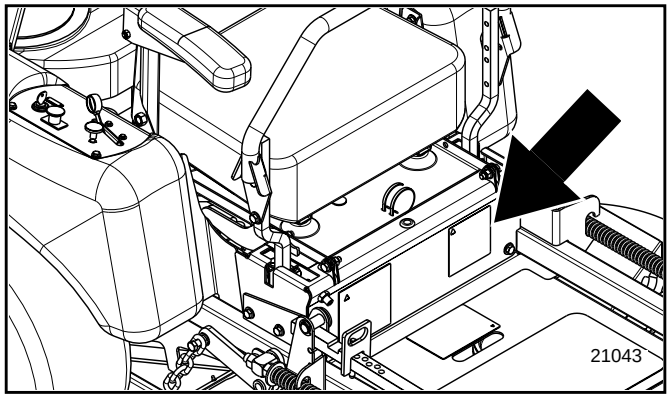
838-306C

Warning: Do not operate without deflector

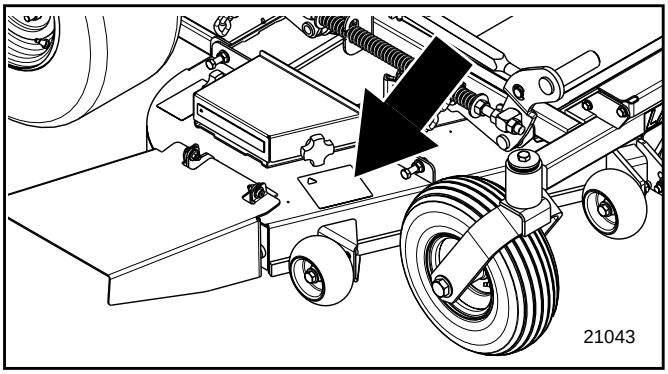


818-543C

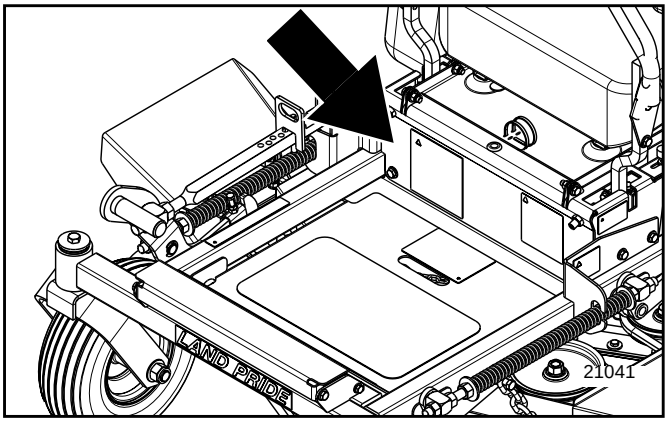
Danger: Guard is missing
(Beneath foot pan on mower deck)

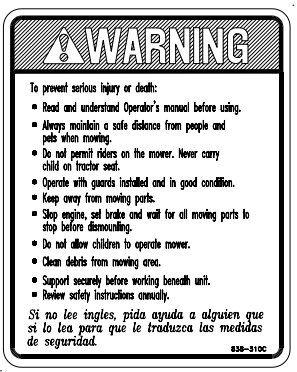


838-307C
Warning: Moving Parts (Both Sides)

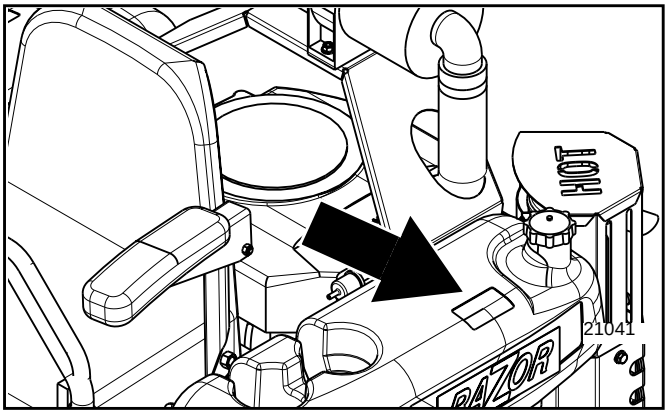


838-308C
Warning: Rotating Blade Hazard (Both Sides)





838-310C
Warning: General



838-399C
Warning: Fuel Imbedded in Fuel Tank

Land Pride welcomes you to the growing family of new product owners.

This mower has been designed with care and built by skilled workers using quality materials. Proper assembly, maintenance, and safe operating practices will help you get years of satisfactory use from this mower.

Application

The Accu-Z Razor® Pro Mowers from Land Pride are compact in size and ideal for homeowner and light duty commercial grass maintenance . The Razor Pro is a true zero-turn mower: When mowing alongside a building or landscaping, the Razor Pro turns within its own width, allowing you to turn away and not hit anything with the rear end. Also the steering lever heights are adjustable making the mower comfortable to handle.

Using This Manual

- This Operator's Manual is designed to help familiarize you with safety, assembly, operation, adjustments, troubleshooting, and maintenance. Read this manual entirely prior to operation and follow the recommendations to help ensure safe and efficient operation.
- The information contained within this manual was current at the time of printing. Some parts may change slightly to assure you of the best performance.
- To order a new Operator's or Parts Manual contact your authorized dealer. Manuals can also be downloaded, free-of-charge from our website at www.landpride.com or printed by your dealer from the Land Pride Service & Support Center CD-Rom.

Terminology

"Right" or "Left" as used in this manual is determined by facing the direction the machine will operate while in use unless otherwise stated.

Definitions

NOTE: A special point of information that the operator must be aware of before continuing.

IMPORTANT: A special point of information related to its preceding topic. Land Pride's intention is that this information should be read and noted before continuing.

Owner Assistance

The Warranty Registration card should be filled out by the dealer at the time of purchase. This information is necessary to provide you with quality customer service.

If customer service or repair parts are required contact a Land Pride dealer. A dealer has trained personnel, repair parts and equipment needed to service the mower.

The parts on your Razor Pro Mower have been specially designed and should only be replaced with genuine Land Pride parts. Therefore, should your Razor Pro require replacement parts go to your Land Pride Dealer.

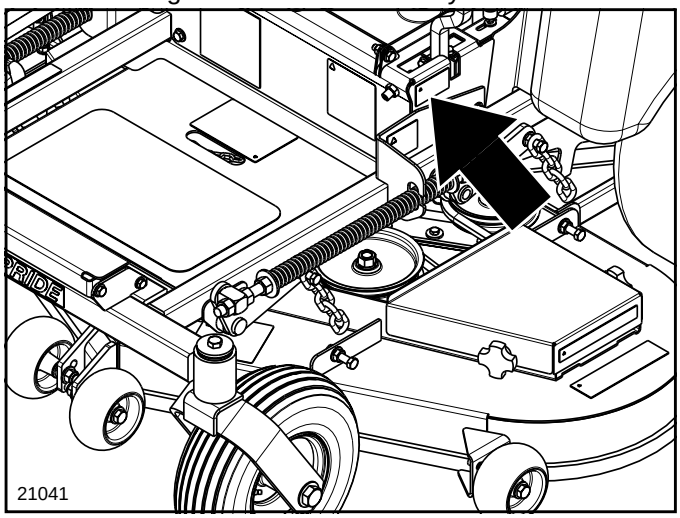
IMPORTANT:
For parts and service for your engine contact your nearest dealer or Call Customer Service Hotline.

Honda Engine Information:
Service Manual: P/N 61ZJ410Z
Owner's Manual: P/N 31ZJ4620
Service Hotline: 1-770-497-6400

Kawasaki Engine Information:
Service Manual: P/N 99924-2045-02
Owner's Manual: P/N 99920-2145-02
Service Hotline: 1-800-433-5640

Serial Number Plate

Refer to the Figure 1 for the location of your serial number.



Serial Number Location
Figure 1

Further Assistance

Your dealer wants you to be satisfied with your new mower. If for any reason you do not understand any part of this manual or are not satisfied with the service received, the following actions are suggested:

1. Discuss the matter with your dealership service manager making sure he is aware of any problems you may have and that he has had the opportunity to assist you.
2. If you are still not satisfied, seek out the owner or general manager of the dealership, explain the problem and request assistance.
3. For further assistance write or E-mail to:

Land Pride
Service Department
P.O. Box 5060
Salina, KS 674022-5060

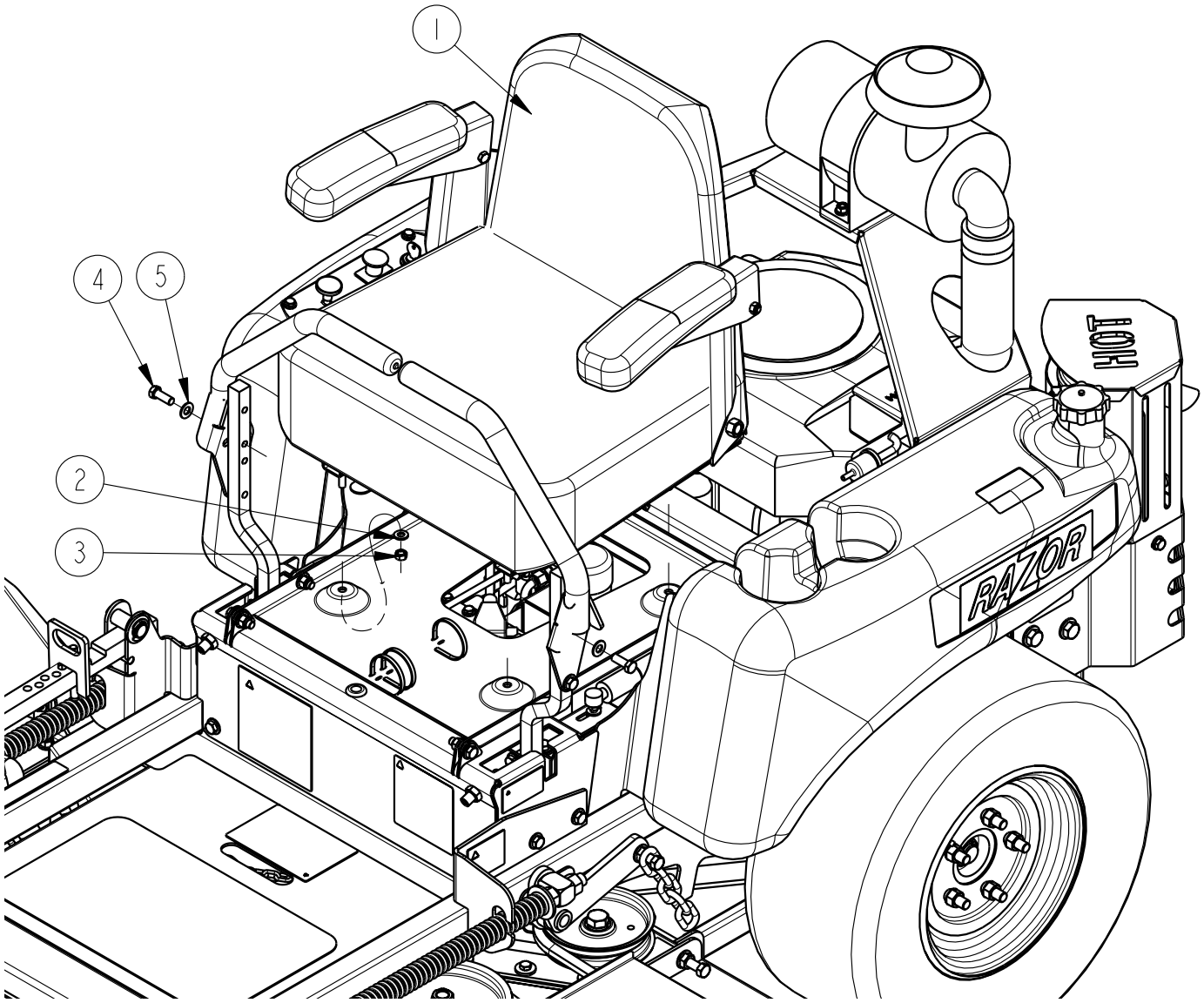
E-mail address
lpservicedept@landpride.com

Control Lever & Seat Assembly

Refer to Figure 1-1:

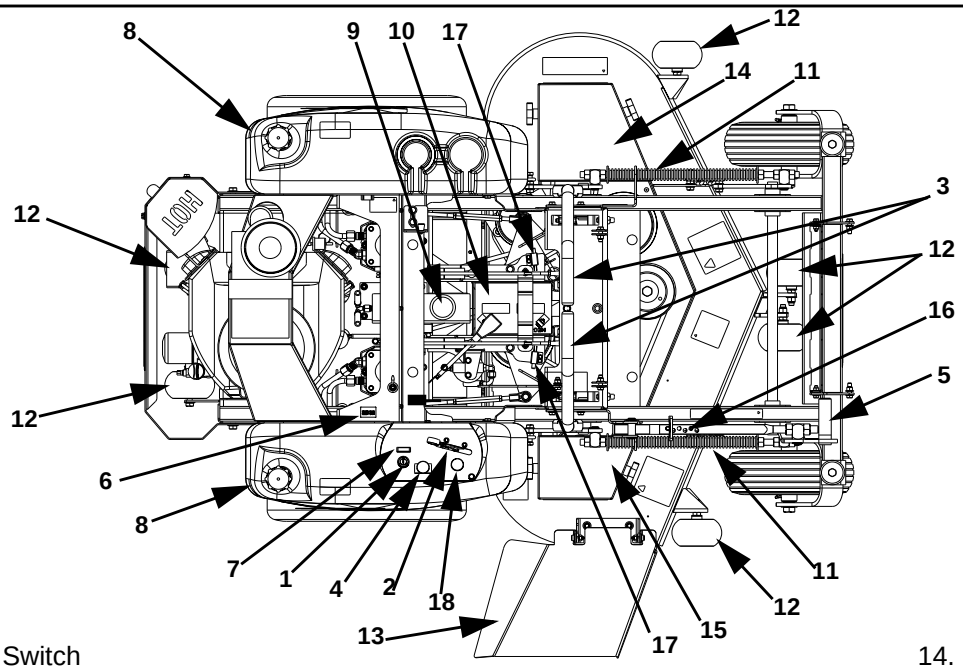
The seat (#1) is shipped loose for ease in shipping. The control lever's upper bolts (#4) and nuts (#5) are removed and the levers are rotated down.

1. ***Refer to Access to Engine & Hydraulic Pumps on page 26***. The seat platform is hinged at the front. To raise it, release seat platform latch and tilt the seat platform up and forward. The seat platform catch will prevent it from going all the way over.
2. Mount seat (#1) in the operating position, to the seat platform with four 5/16" nuts (#3) and four 5/16" flat washers (#2).
3. Connect the switch wires on the mower with the switch wires on the seat.
4. Return seat platform to normal operating position.
5. Rotate the control levers up until the holes line up and replace the bolts and flat washers as shown.



Control Lever & Seat Assembly
Figure 1-1

21053



1. Ignition Switch
2. Throttle Lever
3. Control Levers
4. Blade Engagement Switch
5. Deck Lift Pedal
6. Hour Meter
7. Oil Pressure Light
8. Fuel Tanks
9. Hydraulic reservoir
10. Battery
11. Deck Adjusting Rod
12. Anti-Scalp Wheels
13. Discharge Chute
14. Left Deck Cover
15. Right Deck Cover
16. Deck Height Control
17. Park Brake Switch
18. Choke Lever

Razor Pro Controls
Figure 2-1

WARNING!

Do not operate mower while smoking!

Controls

Refer to Figure 2-2

IMPORTANT: When access is required under the seat platform, make certain to place the control arms in the park brake position (out) and pivot the arm rests upward before placing the seat platform in the full forward position to prevent arm rest damage.

For general location of controls described in this section, refer to Figure 2-1.

Ignition Switch

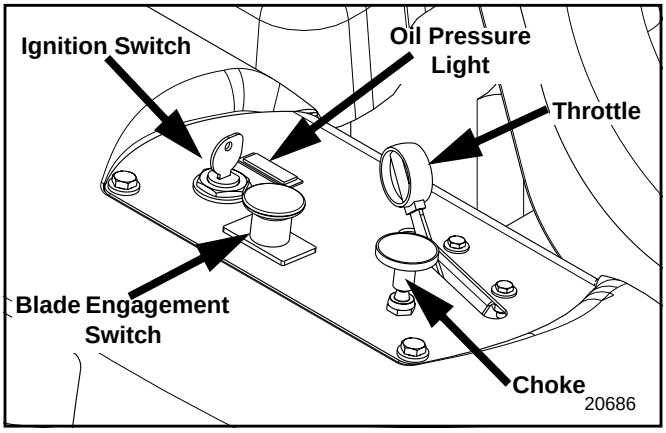
A three position switch: off, run, and start. With key inserted, rotate it clockwise to START position; release key when engine starts, and switch will automatically return to the RUN position.

Throttle Control

A cable is linked to engine throttle for controlling engine speed. Move lever forward to increase engine rpm, move lever rearward to decrease engine rpm.

Choke Control

A cable is linked to manually operate the engine choke. When the lever is in the down position, the choke is in the off (run) position. When the lever is pulled up, the choke is in the on (start) position. **DO NOT** operate the machine with the choke in the on (start) position.

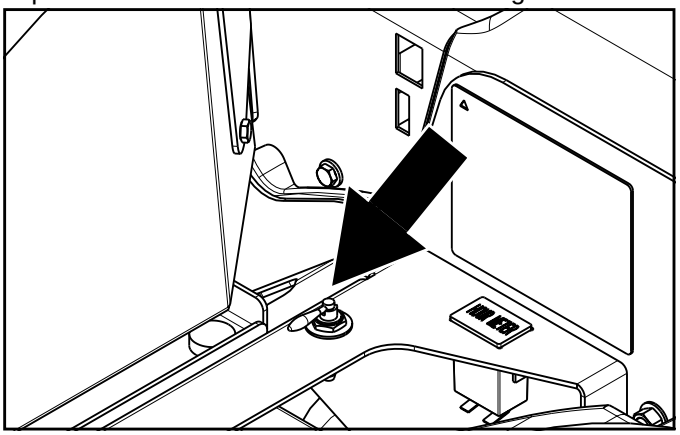


Control Panel
Figure 2-2

Left/Right Fuel Tank Valve

Refer to Figure 2-3:

The mower is equipped with a Left/Right Fuel Tank Valve located on the right side behind the seat. It determines which fuel tank the mower is operating from. It is not important which fuel tank the mower is using.



Left/Right Fuel Tank Switch
Figure 2-3

Blade Engagement Switch

Refer to Figure 2-2:

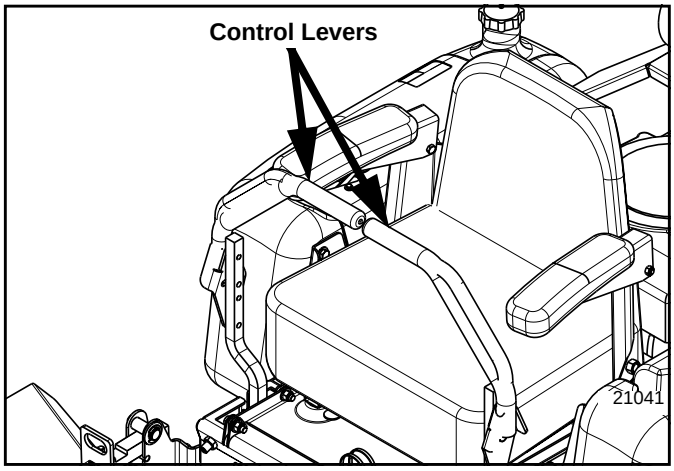
The Blade engagement switch engages the blade clutch which engages deck blades. Pull the switch up to engage and push switch down to disengage the blades.

IMPORTANT: Never engage blades with engine running at high rpm or when the deck is under load. Clutch, belts or deck could be damaged.

Control Levers

Refer to Figure 2-4:

These levers control the mower's speed, direction, neutral lock and park brake. Levers are used to steer, accelerate, decelerate, and change direction. The mower will not move when the engine is on, drive pumps are operating and the control levers are in the park brake position (out) (Figure 2-5).



Control Levers
Figure 2-4

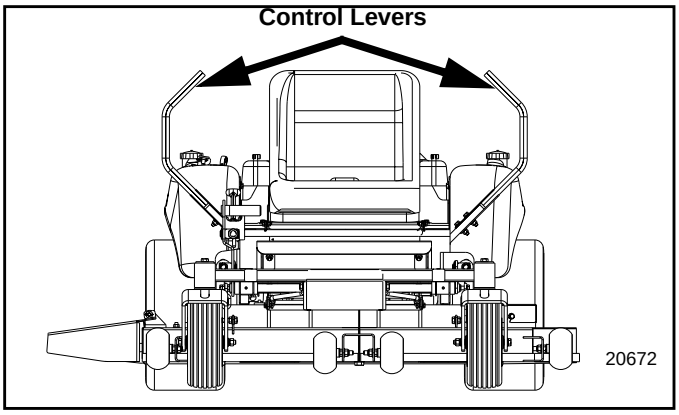
The Parking Brakes are applied by moving the control levers from the Neutral Position (Figure 2-4) to an outward position (Figure 2-5). Each rear wheel brake operates independently of the other.

WARNING!

In the event of a system failure while mowing, engage both parking brakes to stop or slow mower.

WARNING!

The parking brake is not designed to hold the mower on steep slopes.



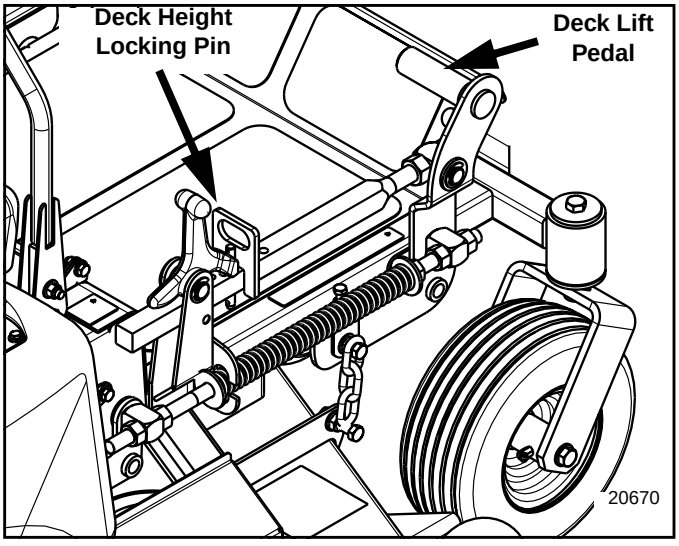
Control Levers in Parking Brake Position
Figure 2-5

Deck Lift Pedal

Refer to Figure 2-6:

The deck lift pedal is used to raise or lower the deck. Push on the pedal to raise the deck and then place the deck height locking pin into the desired cutting height hole.

Push the deck lift pedal to raise the deck when going over obstructions.



Deck Lift Pedal
Figure 2-6

Instrumentation

Oil Pressure Light

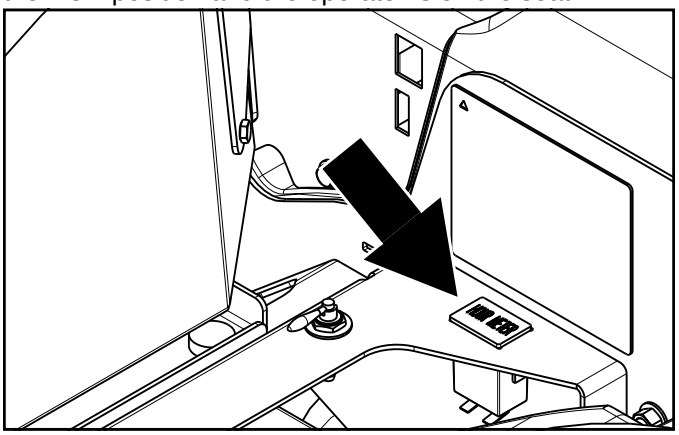
Refer to Figure 2-2:

This light comes on when the ignition switch is placed in the RUN position and stays lit until the engine is running and a safe oil pressure is developed. If light comes on during operation, shut engine off immediately, locate and correct the problem.

Electronic Hour Meter

Refer to Figure 2-7

The hour meter is located on the right side behind the seat and registers in 1/10 hour increments up to 9,999.9 total hours. Connected to the ignition switch, the meter records the accumulative time while the ignition key is switched to the RUN position and the operator is on the seat.



Electronic Hour Meter
Figure 2-7

Safety Start Interlock System

The mower is equipped with a safety start interlock system consisting of park brake switches, seat switch and blade engagement switch.

Check mower safety start interlock system each day prior to operation. This system is an important mower safety feature and should be repaired immediately if it is malfunctioning. The mower incorporates a separate seat switch which will stop the engine whenever the operator is unseated while the mower is moving or the blades are engaged. This safety feature is designed to prevent runaway or accidental entanglement. Inspect the system as follows:

1. The operator must be on the seat when testing the seat switch.
2. Set both control levers in the park brake position.
3. Start the engine and allow it to warm up to operating temperature.
4. A person should be able to slowly raise off the seat without the engine stopping if the blade engagement switch is down and the control levers are in the park brake position.
5. The engine should stop within two seconds if a person raises slowly off the seat and either the blade engagement switch is up or the control levers are in neutral position.
6. Check the function of the seat switch If the engine fails to stop when the blade engagement switch is up or if one or both of the control levers are in and the operator is off the seat. Replace the seat switch If the seat switch is not operating properly (i.e. switch is not opening and/or closing).

If the problem cannot be located, contact your Land Pride Dealer.

WARNING!

The safety interlock system should always function per steps 4 and 5. If it does not function properly, it should be corrected immediately. Do not operate machine without a properly functioning seat safety switch.

Engine Starting

The Razor Pro safety start interlock system is also designed to protect the operator and others from accidental injury due to unintentional engine starting. The engine starting motor will not engage until the following two criteria are meet:

- Control levers are in the brake position.
- Blade engagement switch is in the down (OFF) position.

WARNING!

*The safety interlock system must **not** be disconnected or bypassed.*

NOTE: The operator's seat is equipped with a separate safety switch. If for any reason the operator should become unseated when the neutral switches are disengaged or the blade engagement switch is engaged the engine will stop.

The following steps are the correct procedures for starting the engine. If difficulty is encountered, contact the Land Pride Dealer in your area.

1. Before starting mower each day, perform daily pre-operation checking. (See **"Safety Start Interlock System"** on this page.)
2. Make sure the control levers are in the brake position and blade engagement switch is disengaged.
3. Set throttle at approximately 1/2 open position.

NOTE: Use choke position when engine is cold, or if warm engine fails to start within 5 seconds of cranking. Avoid flooding and operate engine without choking as soon as possible.

4. Insert key in ignition switch and rotate clockwise to engage starting motor. Release key when engine starts.

IMPORTANT: The engine starter should not be operated for periods longer then 30 seconds at a time. An interval of at least two minutes should be allowed between such cranking periods to protect the starter from overheating and burn-out.

5. Perform test to make sure safety start interlock system is operating properly. Refer to **"Safety Start Interlock System"** on page 10.
6. As soon as engine begins to run, check to make certain the oil warning light is off. If not, stop engine immediately and check for the cause. Refer to **"Section 7 Troubleshooting"** on page 37.
7. Allow the engine to idle a few minutes before advancing the throttle and/or engaging the blade clutch.
8. Before stopping the engine, place the control levers in the brake position, disengage the blade engagement, and throttle back to low idle for a couple of minutes; then rotate ignition key counter-clockwise to the OFF position. Remove the key from switch before leaving the seat.

WARNING!

Never leave the machine unattended with key in ignition switch.

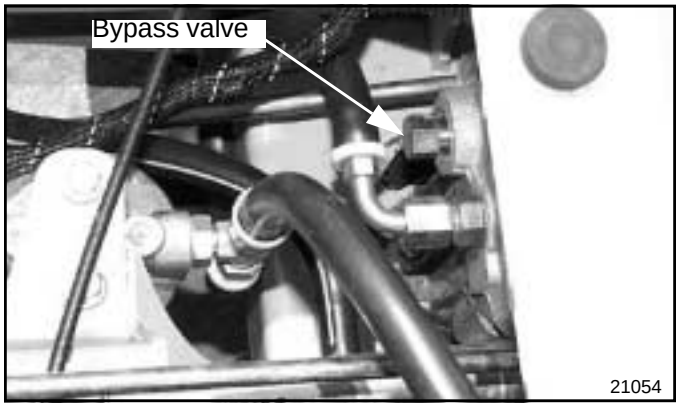
Moving Mower with Stalled Engine

Refer to Figure 2-7

The mower hydro-drives are equipped with bypass valves for moving the mower when the engine is inoperable. The valve stems to the bypass valves are located near the top of the hydraulic pumps and are identified as a hex stud. Before moving the unit, turn each bypass valve stem counter clockwise one-half to one revolution and place the control levers in neutral position.

Do not tow the machine. Move it by hand or use a winch to load it on a trailer for transporting.

When transporting on another vehicle, the tractor should be facing forward and it must be secured.



Bypass Valve
Figure 2-7

IMPORTANT: Following repairs, always make certain the two bypass valve stems are returned to their operating position before running the mower.

Driving the Mower

DANGER!

Never make sudden stops or sudden reversing of direction, especially when going down a slope. The steering is designed for sensitive response. Rapid movement of the control levers in either direction could result in a reaction of the mower that can cause serious injury.

Steering

Refer to Figure 2-8 on page 12

After starting engine, engage the control levers and steer as follows:

- To Go Forward:
  Push control levers forward an equal distance.
- To Go in Reverse:
  Pull control levers rearward an equal distance.
- To Turn Left:
  Move the right control lever farther forward from neutral than the left control lever.
- To Turn Right:
  Move the left control lever farther forward from neutral than the right control lever.
- To Pivot Turn:
  Move one control lever forward and the other control lever back of neutral, this will allow the drive wheels to counter-rotate.

Controlling the Speed

WARNING!

In the event of a system failure while mowing, engage both parking brakes to stop or slow mower. Refer to Figure 2-5.

DANGER!

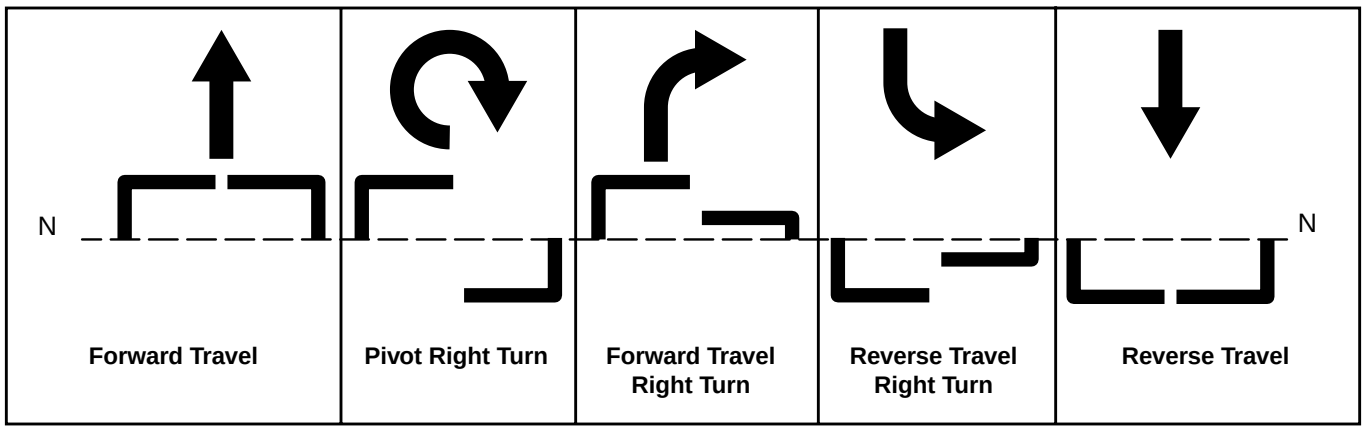
When going in reverse push forward gently on control levers and avoid sudden movement. Any sudden movement could cause the front of the mower to come off of the ground resulting in possible loss of control.

To Stop or decrease speed:

Move control levers to neutral. When going forward pull back gently on control levers. When going in reverse push forward gently on control levers.

To Increase Speed:

Increase control levers equal distance from neutral. The farther forward control levers are from neutral, the faster the mower will travel forward. The farther back the control levers are from neutral, the faster the mower will go in reverse.



N= Neutral Position

Direction of arrows indicate direction of mower movement.

Steering
Figure 2-8

Operating Suggestions

DANGER!

Prior to operating the mower the operator should be thoroughly familiar with the proper use and operation of the equipment, should read the manual completely and thoroughly, and should have attempted slow moving maneuvers to become familiar with the operation of the equipment before attempting normal speed operation. An inexperienced operator should not mow on slopes or on uneven terrain.

WARNING!

The mower's control levers are very responsive: Easy does it! For smooth operation, move lever slowly, avoid sudden movement. Skill and ease of operation come with practice and experience.

Inexperienced operators may have a tendency to over-steer and lose control. Slow-moving practice maneuvers are recommended to become familiar with these characteristics before attempting normal speed operation.

WARNING!

Sharp depressions or raised obstacles (such as gutters or curbs) should not be directly approached at high speed in an attempt to jump them as the operator could be thrown from the mower. Approach at a slow speed and angle one drive wheel at the obstruction. Continue at an angle until the wheel clears and then pivot the opposite wheel around.

When turning on soft wet turf, keep both wheels rolling either forward or backward. Pivoting on one stopped wheel can damage turf. This is especially important when mowing.

Peak mowing performance is maintained when the throttle is set at full rpm. This gives maximum power to the drive wheels and deck when needed. Use the control levers to control ground speed rather than engine rpm.

WARNING!

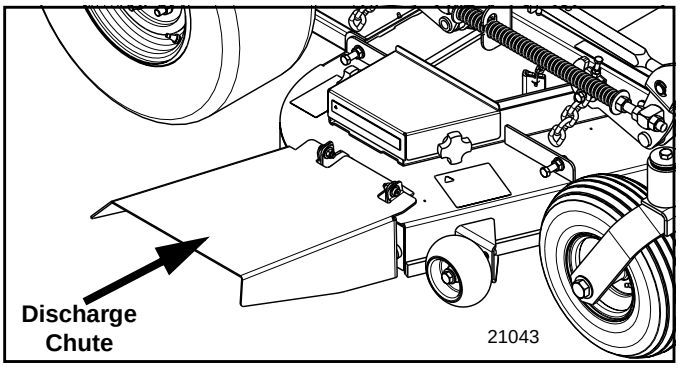
Do not operate the equipment while wearing sandals, tennis shoes, sneakers, shorts or any type of loose fitting clothing. Always wear long pants, safety glasses and safety shoes when operating this machine.

Keep blades sharp. Many problems with incorrect cutting patterns are due to dull blades or blades which have been sharpened incorrectly. Information on sharpening blades is listed in this manual's maintenance section. In addition, most communities have individuals or companies which specialize in sharpening mower blades. Blade sharpness should be checked daily.

Often professional mowing companies have an additional set of blades and change blades twice a day: once in the morning and again at noon.

Use high blade speed. Your Razor Pro is designed to operate at full throttle. The throttle setting directly controls blade speed. The highest blade speed generally gives the best cut.

Direct grass discharge away from unmown area. Refer to Figure 2-9 on page 13. Select a mowing pattern that directs grass discharge away from uncut grass. Generally, this means using a pattern utilizing left turns because grass side discharge is to the right. Grass discharged onto an unmowed area will be mowed twice. Mowing grass twice puts an unnecessary load on the mower and reduces mowing efficiency.



Discharge Chute
Figure 2-9

WARNING!
Never direct discharge of material from mower deck towards bystanders.

WARNING!
Never operate the mower deck with discharge chute removed or in raised position.

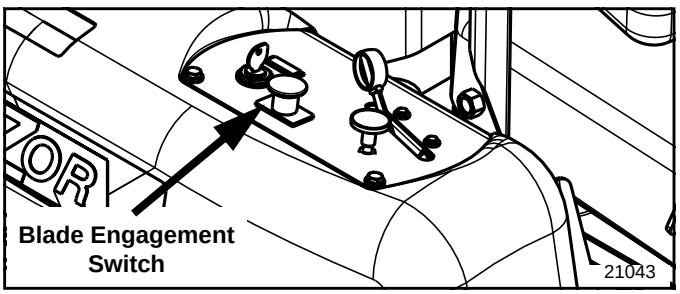
WARNING!
Always check area to be mowed for rocks and other debris before mowing.

Mower Deck Operation

DANGER!
Never attempt to make any adjustments to the mower deck while the engine is running or when the blades are engaged. Mower blades cannot be seen and are located very close to deck housing. Fingers and toes can be cut off instantly.

With the engine running, engage the blades (Refer to Figure 2-10) and advance engine throttle to full rpm.

NOTE: Engaging the blades at high engine rpm or when under heavy load (in tall grass for example) can cause belts to slip, resulting in premature wear or possible damage.



Blade Engagement Switch
Figure 2-10

Operating Instructions

After thoroughly familiarizing yourself with the Operator's Manual and completing the Operator's Checklist, you are almost ready to begin mowing.

Approach the mower from the front. Spread the steering levers fully apart if they aren't already in the wide-open parking brake position. Taking care not to step on either side of the mower deck, step up on the operators' platform and comfortably seat yourself. With both steering levers still wide apart now reach for the throttle and choke control to your right side. Position the throttle control at half throttle and pull the choke to the "up/on" position. Insert your ignition key and rotate the ignition key clockwise until you hear the engine begin to start. Release the ignition key and push the choke to "down/off" position. Allow the engine to warm up momentarily. If your mower has just been running and the engine is already warm, using the choke is usually not necessary.

With the engine at half throttle reach forward and bring both steering levers equally together in the neutral position just in front of you. It's now time to test your steering skills. Gently push both steering levers equally forward. The farther forward you push the levers the faster you will go. Pull back equally and you will slow down coming to a stop when you reach the neutral position. Now slowly pull the levers back toward your body past neutral position. The mower will reverse direction and increase in speed as you pull further back. If you push one lever forward and pull one lever back the mower will do a Zero turn in the direction of the steering lever closest to your body. Now take a few moments in a safe area to practice steering your mower with the engine still at half throttle. Gradually increase your throttle speed until you feel totally confident in your mower steering and handling ability.

It's now time to cut the grass. Hopefully you have already removed any obstacles from the lawn that you do not want run over. With your mower at half throttle, place your right foot on the deck lift pedal and release and lower the deck to your preset cutting height. With your right hand, pull up on the cutting blade engagement knob and increase the engine speed to full throttle. You may now begin mowing.

When you are done mowing or just want to take a break, make sure you do all of the following. Park on level ground, disengage the cutting blade, throttle back, leave the steering levers in wide-open parking brake position, turn the engine off, remove the key, and step carefully off the front of the machine.

Introduction

WARNING!

*Unless specifically required, **DO NOT** have engine running when servicing or making adjustments to the mower. Place control levers in the park brake position and remove ignition switch key. Repairs or maintenance requiring engine power should be performed by trained personnel only. To prevent carbon monoxide poisoning, be sure proper ventilation is available when engine must be operated in an enclosed area. Read and observe safety warnings in front of manual.*

Your Razor Pro was adjusted before it left the factory and was checked during pre-delivery set-up. However, after start-up and continued use, a certain amount of break-in wear will cause some adjustments to change.

Remain alert for unusual noises, they could be signaling a problem. Visually inspect the machine for any abnormal wear or damage. A good time to detect potential problems is while performing scheduled maintenance service. Correcting the problem as quickly as possible is the best insurance.

WARNING!

Keep your machine clean and remove heavy deposits of trash and clippings. They can cause engine fires and hydraulic overheating as well as excessive belt wear.

Clear away heavy build-up of grease, oil and dirt, especially in the area of oil, fuel and engine combustion air; minute dust particles are abrasive to close-tolerance engine and hydraulic assemblies.

Some repairs require the assistance of a trained service mechanic and should not be attempted by unskilled personnel. Consult your Land Pride service center when assistance is needed.

Torque Values

WARNING!

Particular attention must be given to tightening the drive wheel lug nuts and blade spindle bolts. Failure to correctly torque these items may result in the loss of a wheel or blade, which can cause serious damage or personal injury.

Torque Values

	FT - lbs.	N-m
Wheel lug nuts	65 - 75	88.14 - 101.7
Wheel motor nut	290-310	393.2 - 420.4
Blade spindle bolts (top and bottom)	118	160.01

It is recommended that the following be checked after the first 2 hours of initial operation, and every 50 hours following removal for repair or replacement:

- Wheel lug nuts
- Wheel motor nut
- Blade spindle bolts (top and bottom)
- For engine torque values, see engine owner's manual.
- For all other torques refer to Torque Values Chart for Common Bolt Sizes on page 39.

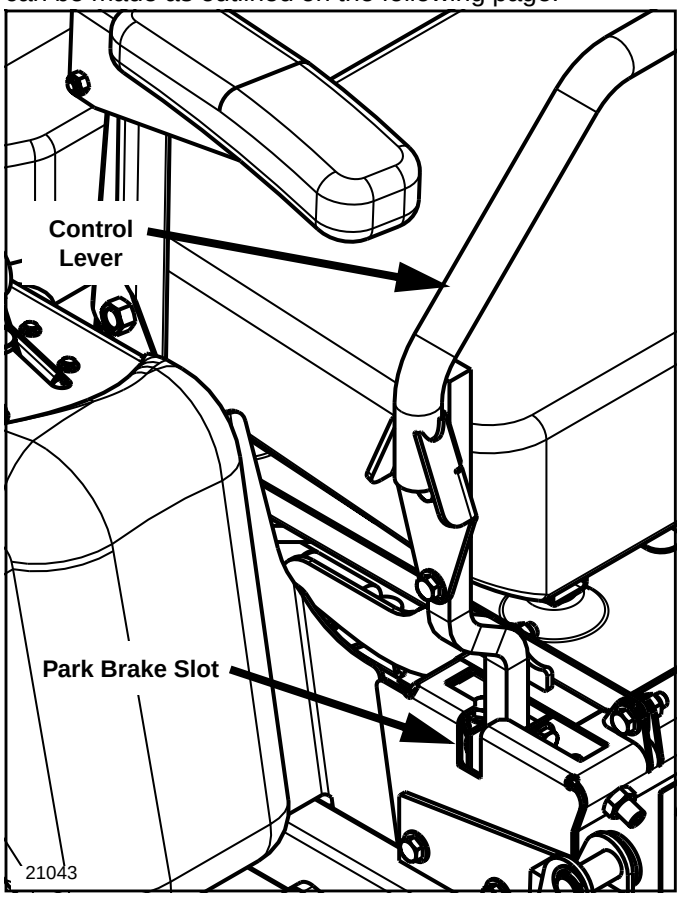
Steering Linkage

Refer to Figure 3-1

The neutral adjustment for the control levers in the neutral position is discussed in this section.

The steering has been factory adjusted to eliminate creeping when the control levers are in neutral position.

However, should the mower begin to creep, adjustments can be made as outlined on the following page.



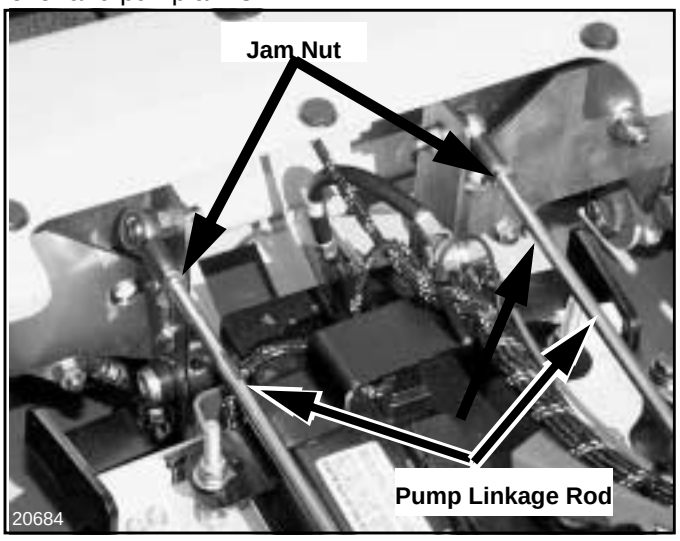
Control Lever In Neutral Position
Figure 3-1

Control Lever Neutral Adjustment

Refer to Figure 3-2

Before considering any adjustment, check the tire air pressure and make certain hydraulic system oil is at operating temperature. Unequal tire pressure will cause the mower to drift to one side. Refer to **"Tire Inflation Chart"** on page 19 and page 39.

Fine adjustment to the steering is made with the adjustable pump linkage rods located between the control lever and pump arms.



Steering Control Linkage
Figure 3-2

Neutral is properly adjusted when the control levers are in the neutral position and the drive wheels are not turning.

If the mower creeps in the neutral position the control linkage may be adjusted as follows:

1. Raise and block the mower up so the drive wheels are off of the floor.

WARNING!

Make certain mower is secure when it is raised and placed on the jack stands. The jack stands should not allow the mower to move when the engine is running and the drive wheels are rotating. Use only certified jack stands.

2. Position the control levers in the neutral position. Disengage the blades.
3. Start the engine and observe which way the wheels are rotating.
4. If wheel(s) are rotating forward, loosen the jam nuts on the pump linkage rods and rotate the rod to lengthen the steering control linkage until the wheel(s) come to a stop. Repeat for the opposite side if necessary.

NOTE: The left linkage controls the right hydraulic pump and the right linkage controls the left hydraulic pump.

5. If wheel(s) are rotating in reverse then loosen the jam nuts on the pump linkage rods and rotate the rod to shorten the steering control linkage until the wheel(s) come to a stop. Repeat for the opposite side if necessary.
6. When both wheels remain in neutral, tighten the jam nuts to lock the turnbuckle in place.
7. Test again by moving the control levers forward and backward before returning them to the neutral position. If the tires are in neutral, the unit is now ready for operation.
8. After adjusting for neutral it may be necessary to readjust the steering dampener and/or the control lever stop. Fig. 5-3 or Fig. 5-4

Control lever stops

Refer to Figure 3-3

The control lever stops are designed to do two things: First, and most important, they must keep the pumps from bottoming out internally. Secondly, the stops may be adjusted to help drive straight when the control levers are pushed forward against the stops.

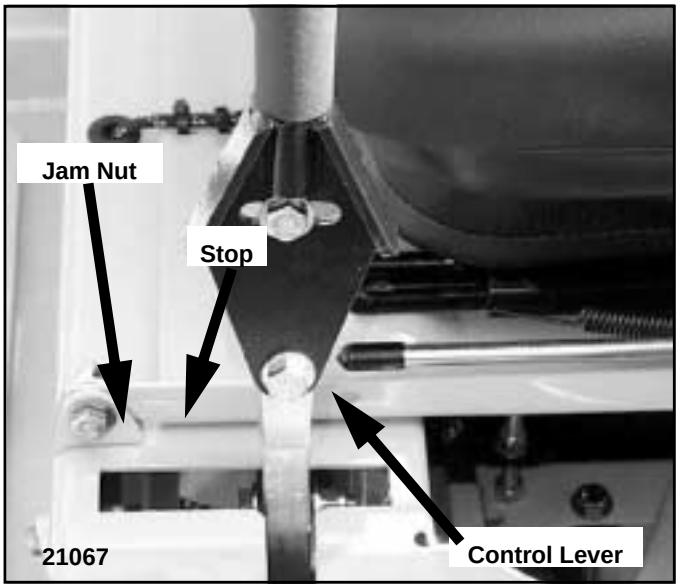


Figure 3-3

To keep the pumps from bottoming out internally use the following procedure:

1. To make the first adjustment the tractor engine must NOT be running.
2. Check to make sure the control levers are against the stops before the pumps are bottomed out internally. To do this, gently and slowly move the control levers forward and feel if there is some resistance on the pump lever before the control levers hit the stops. Check one side at a time. If you sense that the pump arms are stopping the forward motion of the control arms, loosen the jam nut on the adjustable stop of the corresponding side and turn the stop (set screw) inward to stop the control levers slightly before the pump bottoms out. Lock in place when the adjustment is correct by re-tightening the jam nut.

3. Do this for each side.

Refer to Figure 3-3 on page 15. To adjust the stops for driving straight when control levers are against the stops during operation:

4. Determine which drive tire is rotating too fast when both control levers are against the stops. Then stop the tractor and loosen the lock nut on the side which is rotating too fast and turn the stop (set screw) inward to stop the control lever sooner. Tighten the lock nut on the stop and test again. Repeat this procedure until unit drives straight.

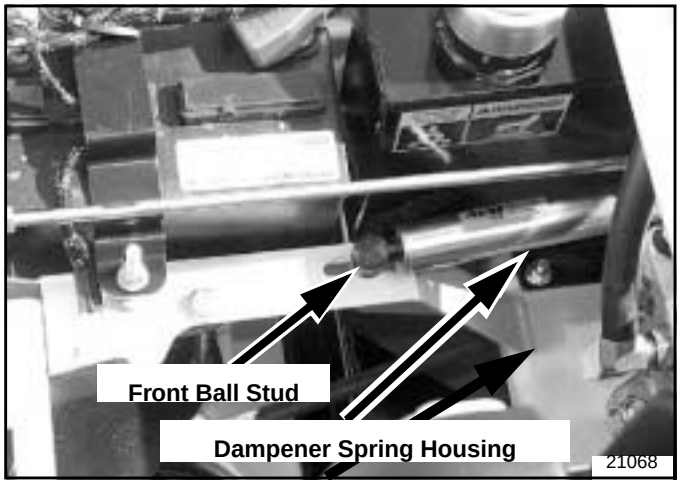
NOTE: Since this is a hydrostatic drive, variables such as temperature of oil, efficiency of pumps and motors, tire pressure etc. may effect the consistency of the ability to rely on the stops to drive straight without the operator making minor steering adjustments with the control arms.

Steering Dampener

Refer to Figure 3-4:

The steering dampeners, one for each control lever, are spring loaded to return the control levers to neutral position from reverse position. This gives the operator a sense of neutral during operation. Set the steering dampeners in the correct operating position as follows:

1. Place control lever in the neutral position.
2. Loosen steering dampener's front ball stud.
3. Pull the dampener spring housing, to the front, past the point that the internal spring is engaged.
4. Release the dampener spring housing and allow the internal spring to bring the housing back to the neutral position.
5. Tighten the nut on the steering dampener's front ball stud.
6. To check, move the control lever to the reverse position and release. The control lever should return to the neutral position. If not, repeat steps 1 through 6.



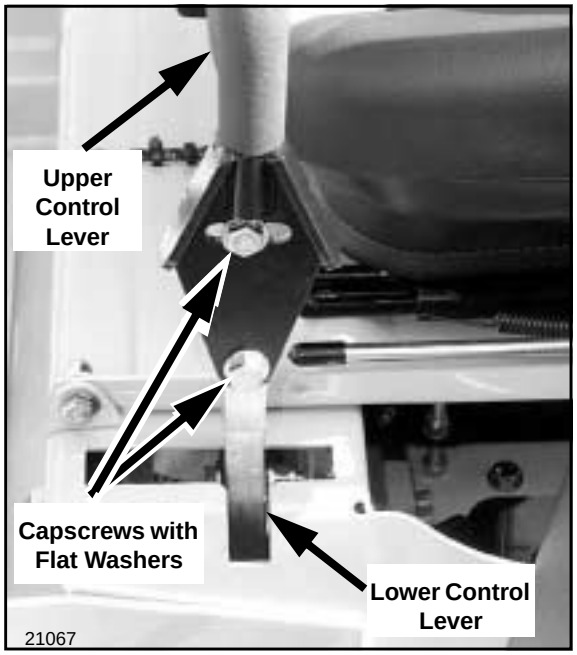
Steering Dampener
Figure 3-4

NOTE: The dampener must not bottom out when the pump lever is fully stroked in either direction.

Control Lever Adjustment

Refer to Figure 3-5

The control levers may be adjusted vertically and pivoted forward or backward for operator comfort. Adjust the control levers vertically by removing the capscrews, flat washers, and locknuts that attach the upper control levers to the lower control levers. Reposition the upper control levers to a height that fits the operator's personal preference. Reassemble the capscrews, flat washers, and locknuts in the same order they were removed without tightening them. Pivot the upper control levers forward or backward to again fit the operator's personal preference. Verify that the control levers align with each other when in the neutral position and tighten the locknuts to correct torque.



Control Lever Adjustment*
Figure 3-5

Park Brake Adjustment

Occasionally check the park brakes and adjustment using the following method:

1. Position the control levers in the neutral position. Disengage the deck clutch.

WARNING!

Make certain machine is secure when it is raised and placed on the jack stands. The jack stands should not allow the machine to move when the engine is running and the drive wheels are rotating. Use only certified jack stands.

*Actual body and frame colors may be different than what is represented in the picture.

NOTE: Refer to Figure 3-6. The front brake link is not adjustable.

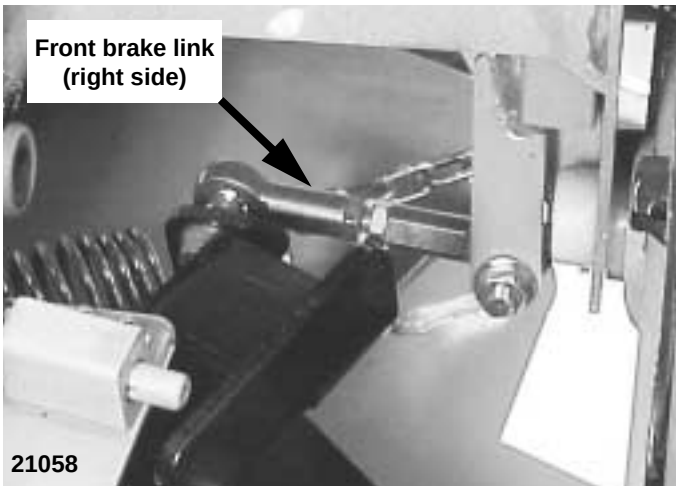


Figure 3-6

2. Raise and block the tractor up so the drive wheels are off of the floor.
3. Refer to Figure 3-7. Open the hydraulic pumps bypass valve, on the side that is being adjusted, by turning bypass valve counter clockwise one-half to one revolution. The valve stems on each hydraulic pump are located near the top and are identified as a hex stud.

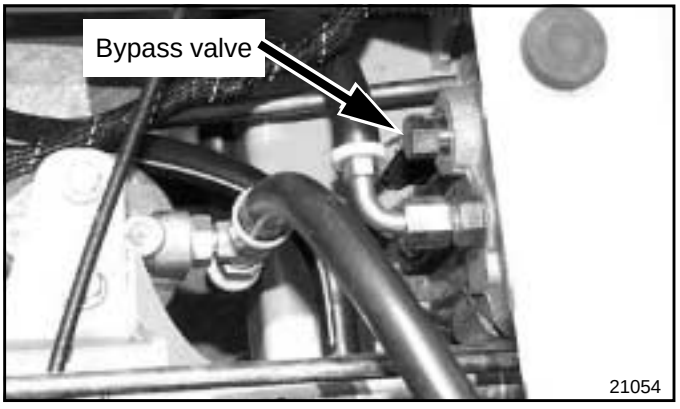
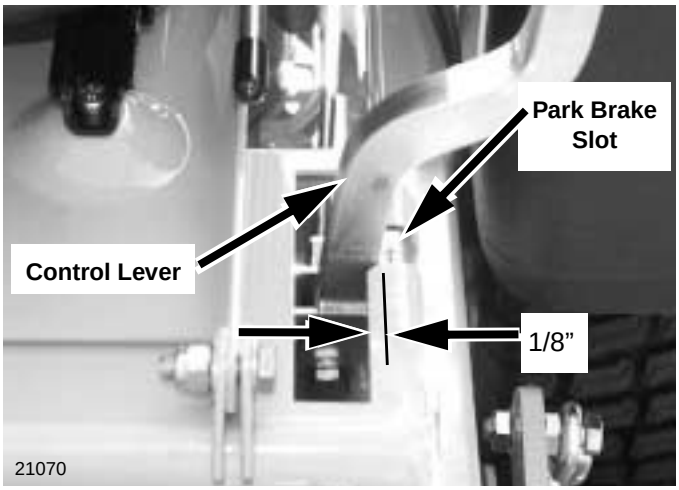


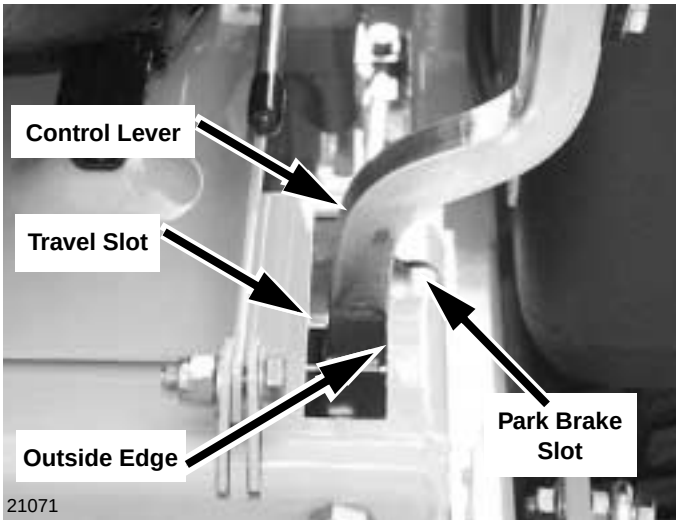
Figure 3-7

4. Rotate the tire. The tire should rotate. Remember hydraulic oil resistance will prevent the tire from rotating freely even with the bypass valves open. There should be no resistance from the brakes at this point.
5. Refer to Figure 3-8. Move the control lever to where it is just inside (1/8”) the park brake slot.



Control Lever Position*
Figure 3-8

NOTE: Refer to Figure 3-9. When the control lever is against the outside edge of the slot, the brakes should not be engaged.



Control Lever Position*
Figure 3-9

6. Rotate the tire. If the brake is adjusted properly the tire will still rotate but friction will start to become noticeable here. However, if no brake resistance is noticed, the brake needs adjusted as follows:

* Actual body and frame colors may be different than what is represented in the picture.

7. Refer to Figure 3-10. Loosen the brake linkage jam nuts.

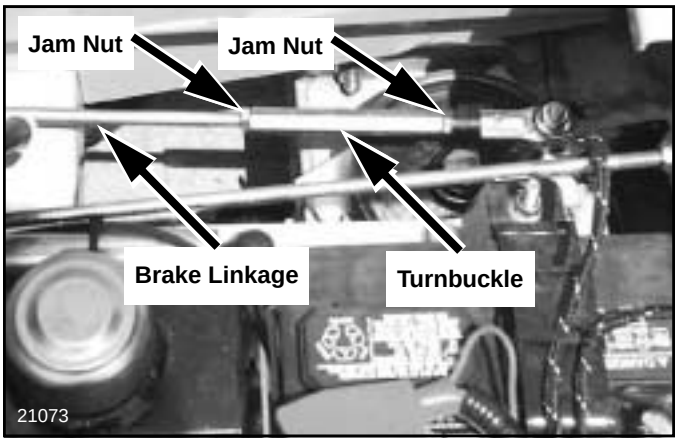
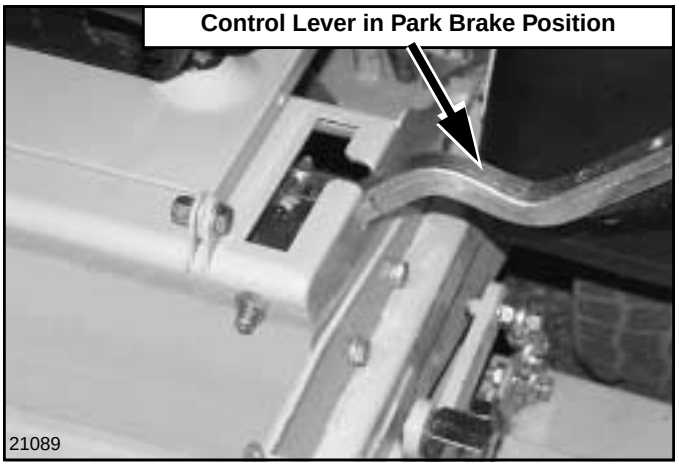


Figure 3-10

8. Rotate the tire and at the same time rotate the turnbuckle to shorten the length of the brake linkage to increase the brake pressure. When you feel the brake begin to engage, stop adjusting the turnbuckle. Retighten the jam nuts on the turnbuckle.
9. Refer to Figure 3-11. Place the control lever in the park brake slot. The tire should not rotate when the control lever is in the park brake position.



Control Lever Position*
Figure 3-11

10. Place the control lever in the neutral position. The tire should rotate freely.
11. Close the hydraulic pumps bypass valve.
12. Repeat steps 3 thru 11 for the other side.
13. Remove the jack stands and lower the unit. It is now ready to operate.

Hydro-Drive Belt Adjustment

Refer to Figure 3-12

The pump drive belt tension remains constant by means of a tension idler and spring. There is no tension adjustment of this belt.

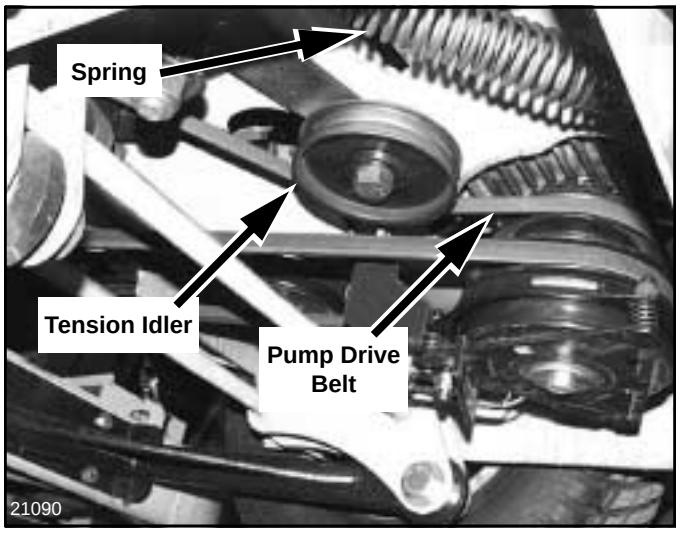
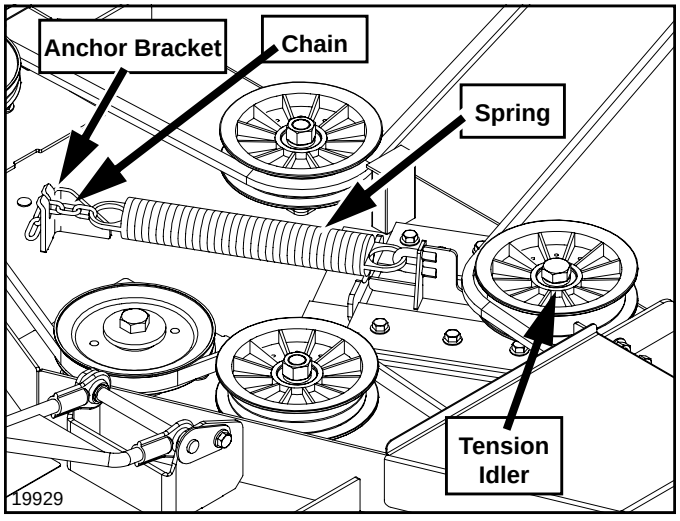


Figure 3-12

Deck Drive Belt Adjustment

Refer to Figure 3-13:

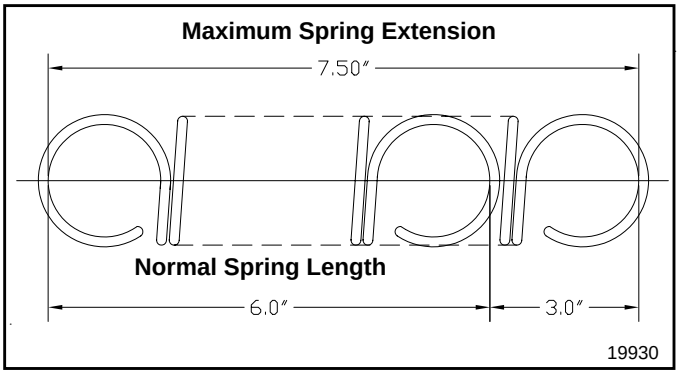
The spindle belt tension remains constant by means of a tension idler and spring. The spring tension should be such that the belt does not slip under normal operating load conditions, assuming the belt is not excessively worn or damaged. As belt stretches and wears in, adjustment may become necessary. To increase belt tension, move the spring chain one (or more) link(s) at the anchor bracket.Installed spring length should be 9.0" +/- .3" (22.8 cm +/- .76 cm) originally with adjustments of .60" (15.2 mm) per chain link.



Drive Belt Adjustment
Figure 3-13

*Actual body and frame colors may be different than what is represented in the picture.

IMPORTANT: Refer to Figure 3-14. Do not over tension the spring to compensate for a badly worn belt or pulley.



Spring Tension
Figure 3-14

Engine RPM Setting

The Razor Pro is designed so that the engine will run at 3600 rpm static pump load only. At this speed the hydraulic pumps are running at their maximum rated speed.

Deck Leveling and Height Adjustment

The mower deck has three areas that may need to be checked and adjusted periodically. Before considering any mower deck leveling adjustments, check that the tire air pressure is within the specified range.

WARNING!

Stop engine. Make sure deck clutch switch is ***in the down (OFF) position****. Place control levers in the brake position before leaving machine.*

Deck Level Adjustments

Leveling the deck must be done in the following manner and order:

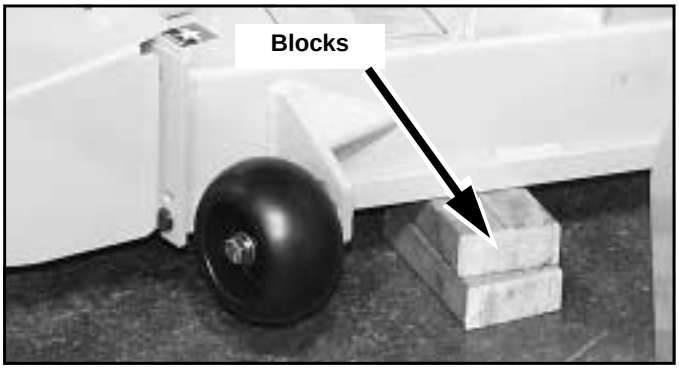
1. Check tire pressures to make certain they are properly inflated before starting to level deck.

Tire Inflation Chart

Tire	Inflation PSI
Drive Wheels	8-10
Gauge Wheels	8-10

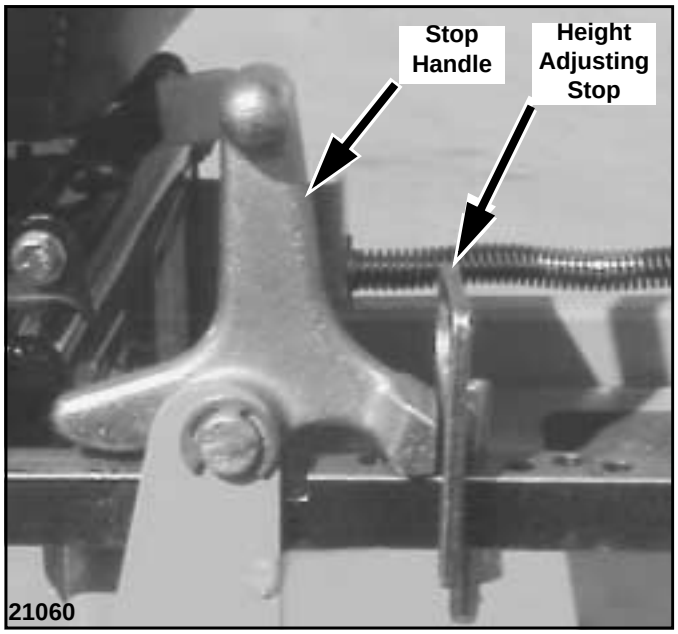
2. Park the unit on a flat surface.
3. Refer to Figure 3-15. Raise deck and place 3” of blocking under all 4 corners of the deck. This will set the cutting height at 3 1/4”.

NOTE: Back of deck will automatically be set 1/4” higher.



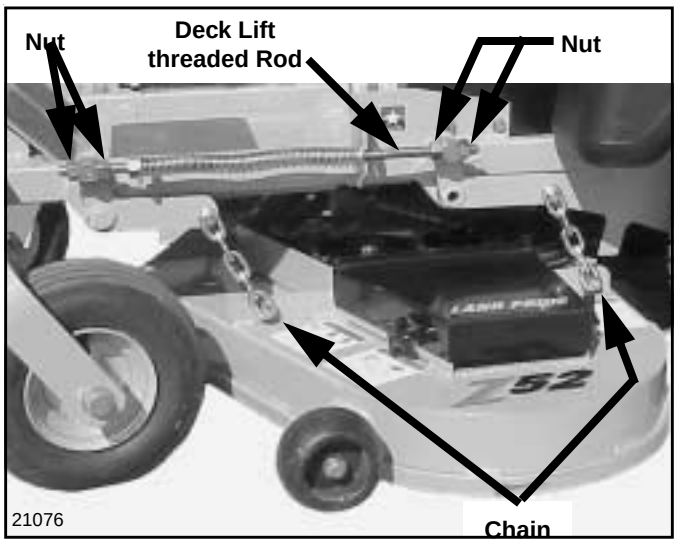
Blocking up Deck
Figure 3-15

4. Refer to Figure 3-16. Set cutting height at 3 1/4” on the height indicator by placing the height adjusting stop in the 3**”** hole, and turning the height stop so that the flat side is against the stop handle.
5. Clamp the height adjusting stop against the stop handle. This will assure that the height will not move during the setting process. Otherwise, spring pressure from the deck lift springs will tend to pull the stop away from the handle.

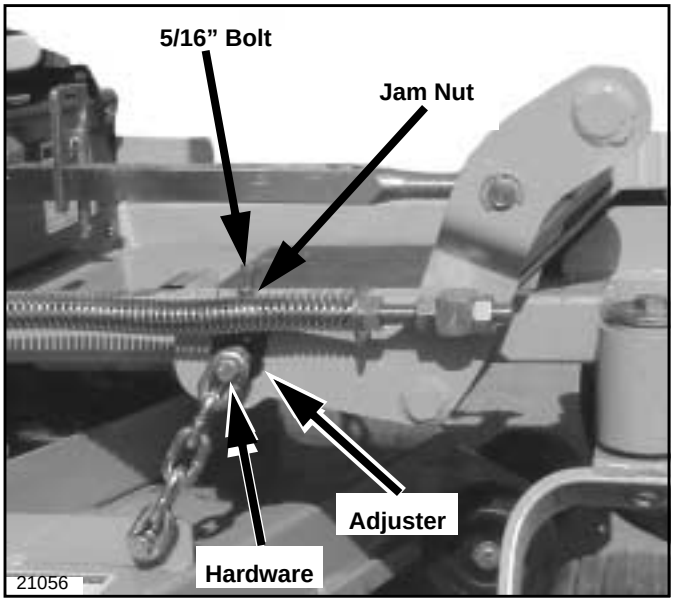


Cutting Height
Figure 3-16

6. Refer to Figure 3-17 & Figure 3-18. Loosen all nuts on the deck lift threaded rods, and the hardware on the adjuster (on the right front), until all the deck lift chains are loose, and the deck is sitting tightly on all four blocks

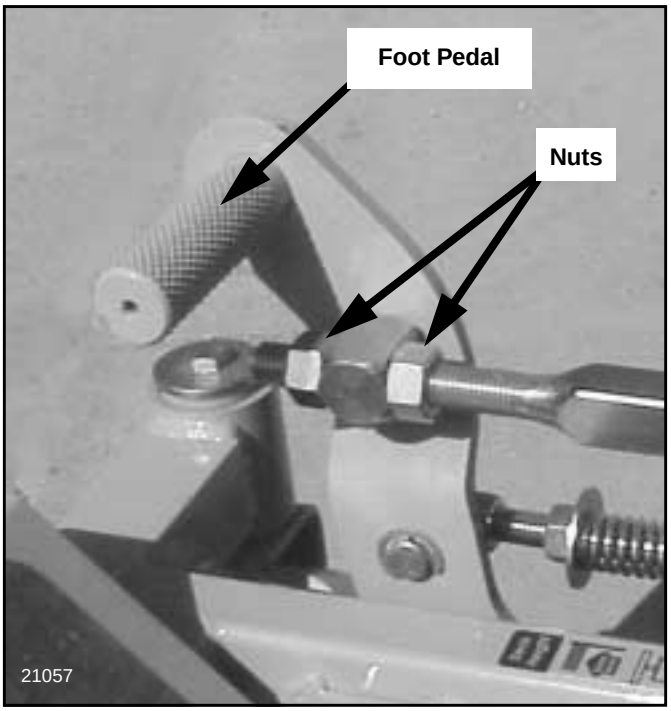


Deck Level Adjustment
Figure 3-17



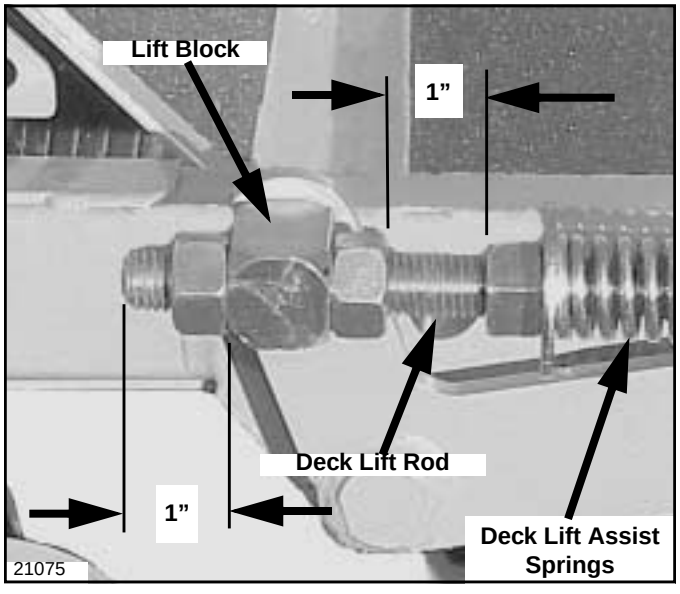
Deck Level Adjustment
Figure 3-18

7. Refer to Figure 3-19. Loosen the two nuts on the front of height indicator so that the foot pedal is free.



Deck Level Adjustment Foot Pedal
Figure 3-19

8. Start the leveling process on the left front of the mower.
9. Refer to Figure 3-20. Set the amount of threads protruding on the deck lift rod from the lift block at approximately 1”
.



Left Rod Protruding Threads
Figure 3-20

10. Jam both nuts against the lift block.
11. Push or pull on the deck lift foot pedal until the chain on the left front just becomes tight, making sure that the deck stays tight against the 3” block.

12. Refer to Figure 3-19. While keeping the chain tight, tighten the nuts against the deck lift block on the height indicator rod.
13. Go to the right front of the mower.
14. Refer to Figure 3-18. Loosen the 5/16” jam nut on the adjuster lift chain, and back the adjuster bolt out to allow the adjuster to move up and down freely.
15. Be sure that adjuster is free to move up and down.
16. Tighten the adjuster bolt until the chain just becomes tight, making sure that the deck stays tight against the 3” block.
17. Refer to Figure 3-18. Tighten the adjuster bolt jam nut to prevent the adjuster bolt from moving.
18. Tighten the hardware holding the chain and adjuster onto the deck lift arm.
19. Go to the right rear of the mower.
20. Refer to Figure 3-17. Make sure that there is still slack in the chain. If not, loosen the two nuts on the block holding the threaded rod until there is slack in the deck lift chain.
21. Tighten the appropriate nut until the chain just becomes tight, making sure that the deck stays tight against the 3” block.
22. Tighten the other nut on the opposite side of the block, and jam them tightly together against the block.
23. Go to the left rear of the mower.
24. Refer to Figure 3-17. Make sure that there is still slack in the chain. If not, loosen the two nuts on the block holding the threaded rod until there is slack in the deck lift chain.
25. Tighten the appropriate nut until the chain just becomes tight.
26. Tighten the other nut on the opposite side of the block, and jam them tightly together against the block.
27. Refer to Figure 3-20. Compress the deck lift assist springs so that there is 1” of space between the front nut and on the spring and the rear nut on the deck lift block. Typical both sides.
28. When completed, all chains will be tight, and deck cutting height will be set to the deck height indicator.

Deck Cutting Height Adjustment

Refer to Figure 3-16.

Deck height is adjustable from 1 1/2” to 4 1/2” in 1/4” increments. The holes in the height adjusting bar are spaced at 1/2” intervals. By turning the height adjusting stop around, 1/4” increments can be attained due to the 1/4” plate that is part of the stop.

EXAMPLE: When the height adjusting stop is placed in the 1 1/2” hole, with the 1/4” plate facing to the front of the unit, the cutting height is at 1 1/2”. When the height adjusting stop is placed in the 1 1/2” hole, with the 1/4” plate on the operator’s side of the hole, the cutting height is at 1 3/4”.

When the height adjusting stop is placed in one of the holes, with the 1/4” plate on the operator’s side of the hole, the deck height will be set at one of the following: 1 3/4”, 2 1/4”, 2 3/4”, 3 1/4”, 3 3/4” or 4 1/4”.

When the height adjusting stop is placed in one of the holes, with the 1/4” plate facing to the front of the unit, the deck height will be set at one of the following: 1 1/2”, 2”, 2 1/2”, 3”, 3 1/2”, 4” or 4 1/2”.

The notch located at the rear of the right height adjusting bar (4 1/2” height) is to used when the deck is placed in the transport mode.

Anti-Scalp Rollers

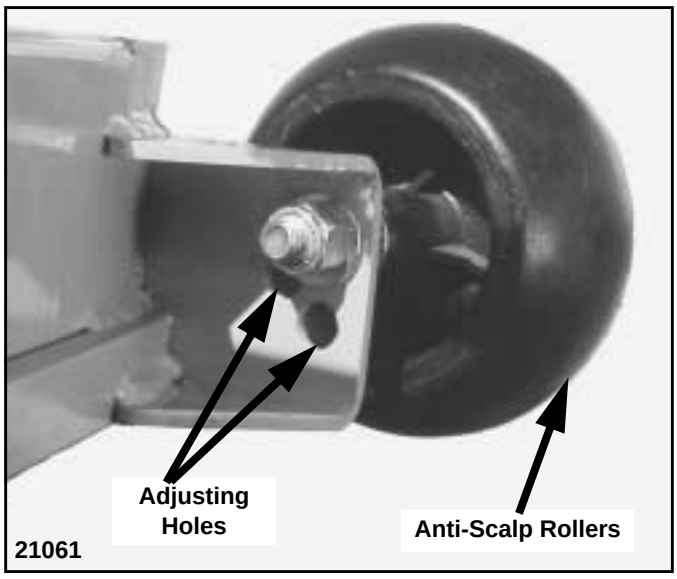
Refer to Refer to Figure 3-21.

Anti-scalp rollers are standard on the Razor Pro. These anti-scalp rollers are designed to minimize scalping when mowing on rough uneven terrain.

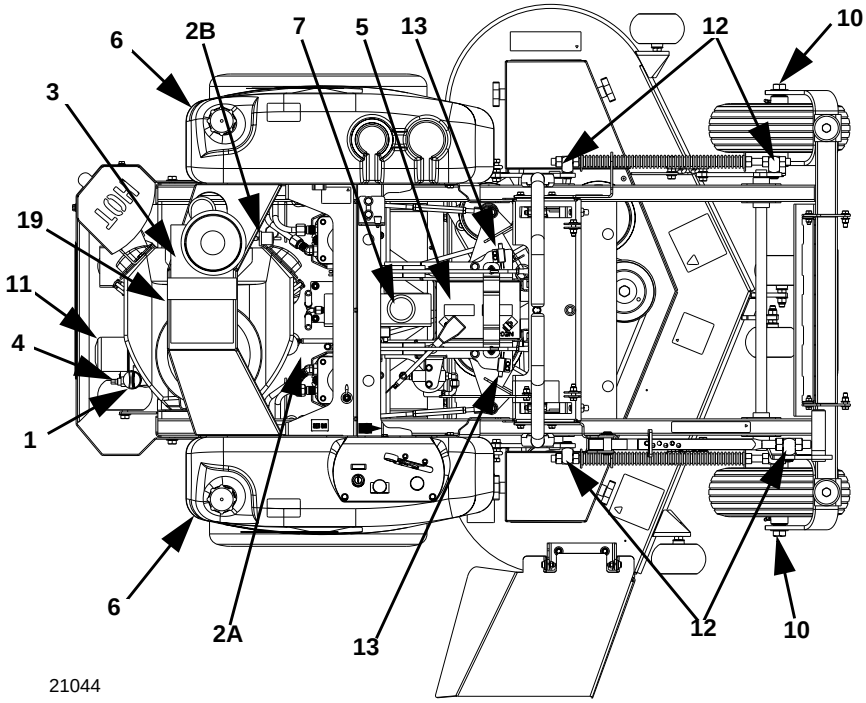
After setting the cutting height, adjust the front anti-scalp rollers so they extend below the deck but do not contact the ground. They should always be at least 1/4” to 3/4” below the deck. With the unit sitting on a flat level surface, the front wheel position can be adjusted up or down as needed from 3/4” to 1 3/4” below the blade surface. Move the front wheels up or down, in 1/2” increments, using the different axle mount holes in the roller mount bracket.

When adjusting the rear anti-scalp wheels, the wheel should be in the lower axle mount hole when the front antiscalp wheels are in the lower or middle axle mount holes. When the front wheels are in the upper axle mount hole, the rear wheels should be in the upper axle mount hole as well.

NOTE: When the anti-scalp rollers are installed, the minimum cutting height is 1 1/2” with the anti-scalp rollers set at 3/4”.

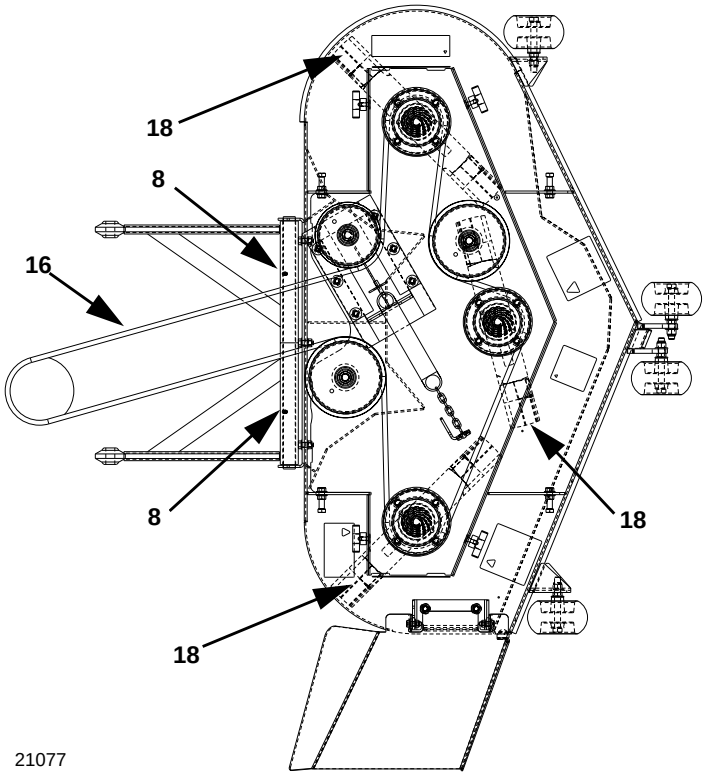


Anti-Scalp Roller Adjustment
Figure 3-21

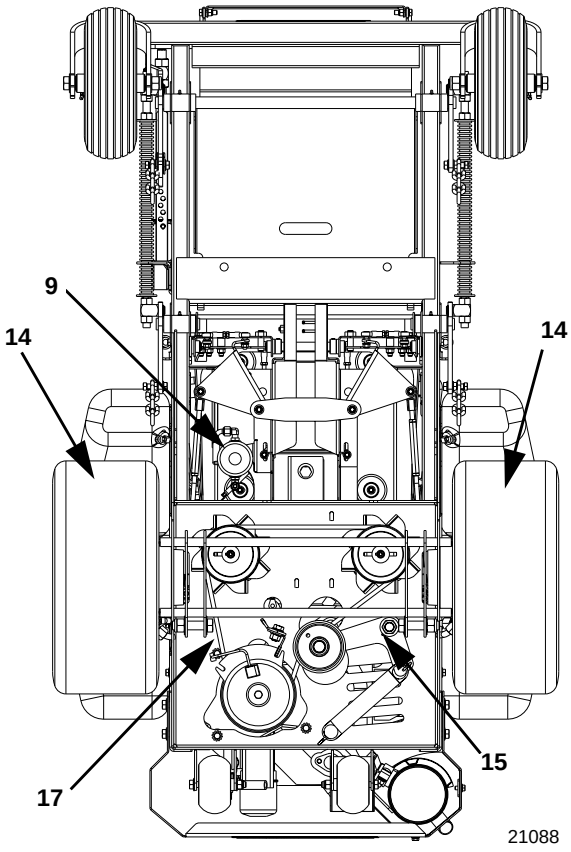


1. Engine Oil Fill & Dipstick
2A. Fuel Filter (Kawasaki)
2B. Fuel Filter (Honda)
3. Engine Air Cleaner
4. Engine Oil Drain Plug
5. Battery
6. Fuel Tanks
7. Hydraulic Oil Reservoir
8. Deck Pusher Arms Zerks (2)
9. Hydraulic Oil Filter
10. Gauge Wheel Bearing Zerks (2)
11. Engine Oil Filter
12. Deck Height Pivot Zerks (4)
13. Park Brake Switch
14. Drive Tire
15. Pump Idler Zerk (1)
16. Deck Belt
17. Pump Belt
18. Blades
19. Hydraulic Oil Heat Exchanger

Top View



Deck Top View



Bottom View

Maintenance Locations
Figure 4-1

Maintenance Schedule			
Service at Intervals Indicated	**Weekly or every 50 Hours**	**Monthly or every 100 Hours**	**Annually or every 500 Hours**
Verify Safety Start Interlock System	Daily		
Visually Inspect Unit for loose hardware and/or damaged parts	Daily		
Visually Inspect Tires	Daily		
Check Oil Level, Engine (1)	Daily or every 4 hours		
Clean Air Intake Screen (5)	Daily or every 4 hours		
Clean Oil Heat Exchanger (5)	Daily or every 4 hours		
Check Fuel Level	Daily		
Blades - Sharpen & Securely Fastened	Daily		
Discharge Chute - Securely In Place & In Lowest Position	Daily		
Replace Remote Air Cleaner paper element (5)	As needed		
Grease Deck Pusher Arms	X		
Grease Pump Idler	X		
Grease Deck Height Pivots	X		
Grease Gauge Wheel Bearings	X		
Change Engine Oil & Filter (1) (4)	X		
Clean Cylinder And Head Fins (8)	X		
Check Battery Connections	X		
Check Tire Pressure With A Gauge	X		
Check Hydraulic Oil Level	X		
Clean Engine Exterior (8)	X		
Clean And Re-gap Spark Plugs (8)		X	
Check Pump Belt and Deck Belt for Tension and Condition (6)		X	
Check Fuel And Hydraulic Lines (7)		X	
Check Fuel Valve And Grommet (7)		X	
Tighten Lug Nuts On Wheels (2)		X	
Change Fuel Filter			X
Clean or Replace Hydraulic Fill Cap			X
Change Hydraulic Filter And Oil (3)			X
Replace Spark Plugs			X

NOTES:

1. Initial oil change is after 5 hours of operation. Thereafter, change oil after every 40 hours of operation. Change more often under dusty or dirty conditions and during hot weather periods.
2. Torque initially and retorque after first 2 hours of operation.
3. Perform initial hydraulic filter change after 50 hours (one week) of operation.
4. Change engine oil filter per the engine manufacturer's recommendations. Refer to Engine Owner's Manual for recommendations and other maintenance items.
5. Service more often under dusty or dirty conditions. Use caution when servicing to prevent dust contamination in the engine. **Do not** clean filter element. Replace with a new one.
6. **Inspect every 100 hours** and replace if worn or cracking is noticed. Otherwise, **replace every 1000 hours or 2 years** whichever comes first.
7. Check fuel line hoses, fuel valve and grommet for any cracks or leaks.
8. Refer to Engine Owner's Manual.

Maintenance

WARNING!

Unless specifically required, DO NOT have engine running when servicing or making adjustments to mower. Place control levers in the neutral position, disengage blade engagement, and remove ignition switch key. Repairs or maintenance requiring engine power should be performed by trained personnel only. To prevent carbon monoxide poisoning, be sure proper ventilation is available when engine must be operated in an enclosed area. Read and observe safety warnings in front of manual.

DANGER!

Before working on or under the deck, make certain engine cannot be accidentally started. Shut engine off and remove ignition switch key for maximum safety. Repairs or maintenance requiring engine power should be performed by trained personnel only.

DANGER!

Exercise caution when working under the deck as the mower blades are extremely sharp. Wearing gloves is advisable when working around or with the blades.

WARNING!

Except when changing or checking belt, always keep belt covers on mower for safety as well as cleanliness.

WARNING!

When possible, clean under mower using a stick or similar instrument making sure that no part of the body, especially arms and hands are under mower.

Regular maintenance is the best prevention for costly downtime or expensive, premature repair. The following pages contain suggested maintenance information and schedules which the operator should follow on a routine basis.

Remain alert for unusual noises, they could be signaling a problem. Visually inspect the machine for any abnormal wear or damage. A good time to detect potential problems is while performing scheduled maintenance service. Correcting the problem as quickly as possible is the best insurance.

WARNING!

Keep your machine clean and remove any deposits of trash and clippings which can cause engine fires and hydraulic overheating as well as excessive belt wear.

Clear away heavy build-up of grease, oil and dirt, especially in the engine and under the seat platform area; minute dust particles are abrasive to close-tolerance engine and hydraulic assemblies.

Daily inspect mower for grass clippings and wire and string tangles. The underside of the mower deck will collect a build-up of grass clippings and dirt, especially when grass is wet or has high moisture content. This build-up will harden, restricting blade and air movement and will probably show a poorer quality of cutting. Therefore it should be removed routinely.

To do this it will be necessary to raise and block the deck in the full up position and scrape the build-up from underneath.

Some repairs require the assistance of a trained service mechanic and should not be attempted by unskilled personnel. Consult your Land Pride dealer when assistance is needed.

Torque Values

WARNING!

Particular attention must be given to tightening the drive wheel lug nuts and blade spindle nuts. Failure to correctly torque these items may result in the loss of a wheel or blade, which can cause serious damage or personal injury.

Torque Values

	FT - lbs.	Nm
Wheel lug nuts	65 - 75	88.14 - 101.7
Wheel motor nut	290-310	393.2 - 420.4
Blade spindle bolts (top and bottom)	118	160.01

It is recommended that these be checked after the first 2 hours of initial operation and every 50 hours following removal for repair or replacement.

For all other torques refer to **“Torque Values Chart”** page 39.

For engine torque values, see engine owner’s manual.

Tires

It is important for level mowing that the tires have the same amount of air pressure.

Tire Inflation Chart

Tire	Inflation PSI
Drive Wheels	8-12
Gauge Wheels	8-12

Solid fill tires are not to be used on the Razor Pro mowers.

Hour Meter

Refer to Figure 4-2

To recognize when your machine needs servicing, check the hour meter and the maintenance schedule. The hour meter shows the number of hours the engine has run and the maintenance schedule lists the service intervals.

Lubrication

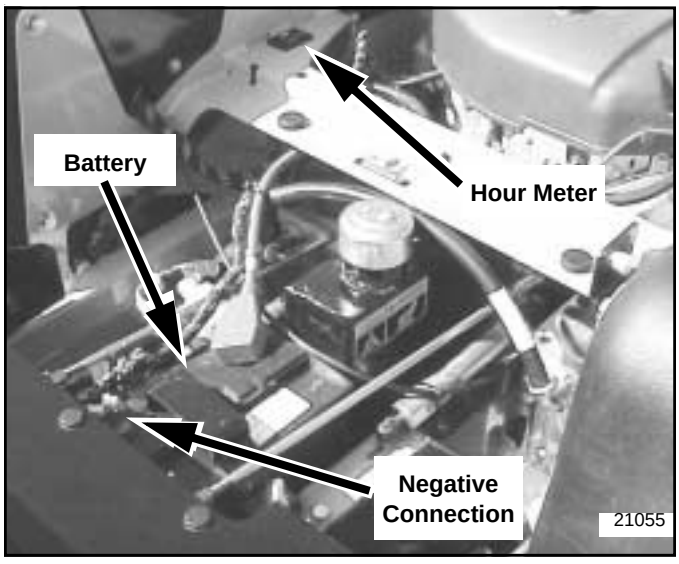
1. Grease the front gauge wheel bearings per the Maintenance Schedule. Use SAE multi-purpose grease.
2. Grease the four deck lift pivots, located to the side of the operator's foot rest per the Maintenance Schedule. Use SAE multi-purpose grease.
3. Grease the deck idler per the Maintenance Schedule. Use SAE multi-purpose grease.
4. Grease the pump idler per the Maintenance Schedule. Use SAE multi-purpose grease.
5. Grease the two deck pusher arm pivots per the Maintenance Schedule. Use SAE multi-purpose grease.

Electrical System

Refer to Figure 4-2

NOTE: The mower is shipped with negative ground cable disconnected from the battery. The battery should be charged slowly 5 to 6 hours before connecting the ground cable to the battery and operating the mower.

The electrical system is 12 volt, negative ground with the battery located under the seat. Recommended battery is a maintenance-free garden mower BCI group U1R with 225 or better cranking AMP rating. Otherwise, follow battery manufacturer's maintenance, safety, storing and charging specifications.



Battery and Hour Meter
Figure 4-2

WARNING!

Shorts caused by battery terminals or metal tools touching metal tractor components can cause sparks. Sparks can cause a battery gas explosion which will result in personal injury. Prevent the battery terminals from touching any metal tractor parts when removing or installing the battery. Do not allow metal tools to short between the battery terminals and metal tractor parts.

WARNING!

Avoid skin contact with battery acid. Always wear eye protection when checking the battery, acid can cause serious injury to skin and eyes. If contact occurs, flush area with clean water and call physician immediately. Acid will also damage clothing. Do not allow open flame near the battery when charging. Hydrogen gas forms inside the battery. This gas is both toxic and flammable and may cause an explosion if exposed to flame. Always remove the negative ground first and replace it last. Do not overfill battery. Electrolyte may overflow and damage paint, wiring or structure. When cleaning the battery, use soap and water. Be careful not to get soap and water into the battery. Use soda mixed in water to clean corrosion off the terminals.

WARNING!

*Incorrect battery cable routing can cause damage to the tractor and battery cables. This can cause sparks which can cause a battery gas explosion which will result in personal injury. Always **disconnect** the negative (black) battery cable before disconnecting the positive (red) cable.*
*Always **connect** the positive (red) battery cable before connecting the negative (black) cable.*

Common circuit failures are usually caused by shorting, corroded or dirty terminals, loose connections, defective wire insulation or broken wires. Switches, solenoids and ignition components may also fail, causing a shorted or open circuit.

The electrical system is protected by fuses located on the right fuel tank instrument panel. The fuses are as follows:

Main - 20 Amp, blade type

Clutch/Aux. - 10 Amp, blade type

Seat/Neutral - Kawasaki engine = 5 Amp, blade type
Honda engine = 10 Amp, blade type

Before attempting any failure diagnosis of the electrical system, use a test light or voltmeter to check the battery voltage. If the battery voltage is satisfactory, check the cleanliness and tightness of the terminals and ground connections. A general understanding of electrical servicing and use of basic test equipment is necessary for troubleshooting and repair.

Major overhaul or repair of the starting motor or alternator should be performed by trained technicians only.

Burnishing the Electric Clutch

Refer to Figure 4-3

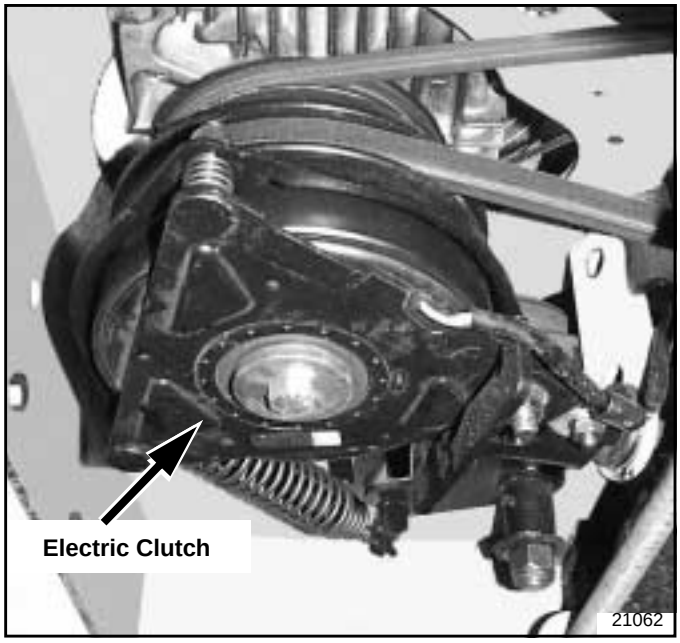
WARNING!

Figure 4-3WARNING: To insure maximum performance and life, it is necessary to burnish the clutch

Burnishing the electric clutch (Fig. 4-4) will develop better contact between the armature and rotor, helping to develop higher torque capabilities without slipping. The warranty on the new clutch will be voided if it is not burnished properly.

Use the following procedure to burnish the clutch:

1. Check the air gap between armature and rotor. Gap should be .012 to .024.
2. Cycle the clutch on and off 10 times (15 seconds on and 15 seconds off) with the engine operating at half throttles, approximately 1500 rpm.



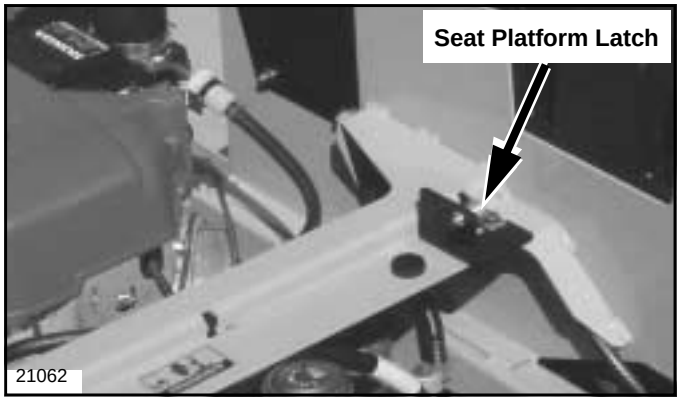
Electric Clutch
Figure 4-3

Access to Engine & Hydraulic Pumps

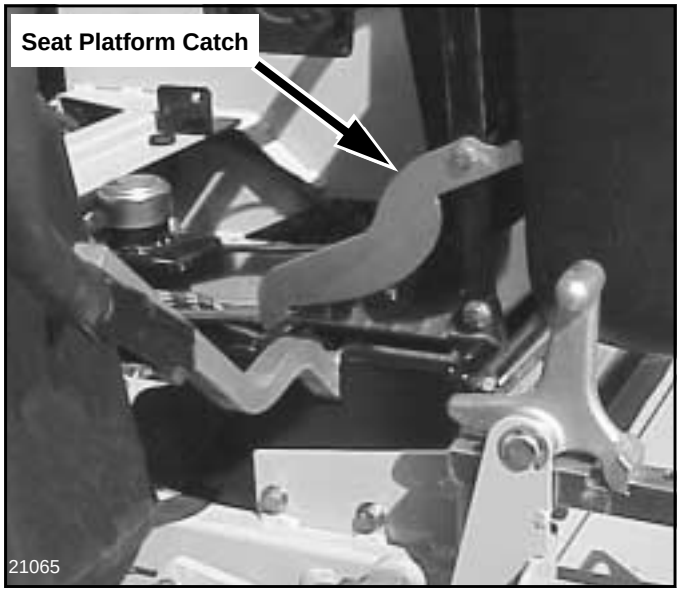
Refer to Figure 4-5

The pump units are accessed under the seat platform. Raise the seat platform by releasing the seat latch and tilting the seat platform up and forward about its hinged front. A seat platform catch will prevent the seat from going all the way over. Release the seat platform catch if more room under the seat is needed and pivot the seat further forward.

IMPORTANT: Make certain to place the control arms in the park brake position and pivot the arm rests upward before placing the seat platform in the forward position.



Seat Platform Latch
Figure 4-4



Access to Integrated Pump/Motor
Figure 4-5

WARNING!

Always wear adequate eye protection when servicing the hydraulic system and battery.

Hydraulic System

Refer to Figure 4-6

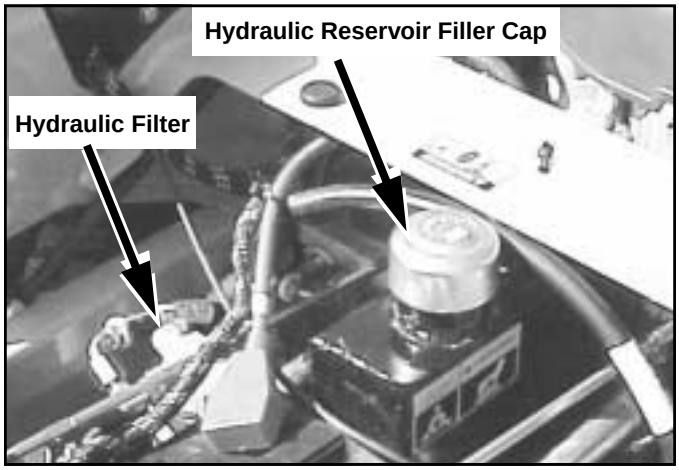
WARNING!

Hydraulic oil escaping under pressure can penetrate skin. Hydraulic oil may cause infection in a minor cut or opening in the skin. If exposed to hydraulic fluid, see a doctor at once. Before applying pressure to hydraulic system, make sure all connections are tight and all hoses and lines are in good condition. To find a leak under pressure, use a piece of cardboard or wood never use your hands. Relieve all pressure in the system before disconnecting or working on hydraulic lines. To relieve pressure, lower all attachments and shut off engine.

IMPORTANT: Never use hydraulic or automatic transmission fluid in this system; use only motor oil as specified. Remember, dirt is the primary enemy of any hydraulic system.

IMPORTANT: Each hydraulic pump is equipped with a bypass valve. For additional information refer to Operating Section, **"Moving Mower with Stalled Engine"** page 11.

Refer to Figure 4-6. The 1.0 U.S. gallon (3.79 liter) hydraulic reservoir is located in front of the engine and under the operator's platform.



Hydraulic Reservoir
Figure 4-6

Check oil level in hydraulic system after every 50 hours of operation or weekly, whichever occurs first. Check more often if system appears to be leaking or otherwise malfunctioning.

Fluid level should be 1" from top of reservoir. Use only SAE 10W40 SG, SF/CC, CD service motor oil.

Refer to Figure 4-6. Change hydraulic system filter element (Land Pride P/N 831-030C) after first 50 hours of tractor operation, then replace filter and oil in reservoir every 500 hours thereafter. When changing hydraulic oil use 1/2 unit (approximately 3.5 oz.) of Lubrizol additive (Land Pride P/N 821-041C). This additive, available from your Land Pride dealer, will increase the performance life of the hydraulic system components.

The system filter is located to the right of the hydraulic reservoir. A standard oil filter wrench is used to change filter, threads are right handed. Use **Land Pride approved filter element P/N 831-030C only.**

IMPORTANT: Prefill the filter element with clean oil before installing to prevent drawing air into the system pump.

Replace filter element as follows:

1. Fill the filter element with clean system oil. Smear a light coating of oil on upper surface of rubber seal.
2. Install the filter element on base. Tighten the oil filter by hand until the filter seal makes contact with the filter head, then tighten an additional 3/4 turn with a an oil filter wrench. DO NOT OVERTIGHTEN.
3. Start tractor engine and let run at approximately 2/3 throttle for a few minutes to work any trapped air out of the system before engaging the steering control lever.
4. Stop the engine and check the filter and connections for leaks.
5. Check the hydraulic reservoir for specified oil level. Add clean oil as necessary.

Clean or replace hydraulic reservoir cap annually. Cap may be cleaned by dipping in or flushing with cleaning solvent. Follow manufacturer s instructions and warnings for application of solvent type selected.

NOTE: The hydraulic pumps are equipped with bypass valves. Refer to "**Moving Mower with Stalled Engine**" on page 11 for more information.

Fuel System

Refer to Figure 4-7

DANGER!

Observe usual fuel handling precautions; do not smoke while refueling, do not fill tank with engine running or while engine is hot. Clean up any gasoline spills.
Allow engine to cool before storing machine inside a building. Keep fuel away from open flame or spark and store machine away from open flame or spark if there is fuel in the tank.
Use extra caution when handling gasoline and other fuels. They are flammable and vapors are explosive. A fire or explosion from gasoline can burn you and others and can damage property. Refuel outdoors preferably, or in well ventilated areas. Never attempt to start engine when there is a strong odor of gasoline fumes present. Locate and correct cause. Store gasoline in an approved container and keep it out of the reach of children. Never buy more than a 30 day supply of gasoline.
Do not fill gasoline containers inside a vehicle or on a truck or trailer as interior carpets or plastic truck bed liners may insulate the container and slow the loss of any static charge. When practical, remove equipment from the truck or trailer and refuel the equipment with its wheels on the ground. If this is not possible, then refuel the equipment on the truck or trailer using a portable container and not a gasoline dispenser nozzle. If a gasoline dispenser nozzle must be used, keep the nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete.

WARNING!

Gasoline is harmful or fatal if swallowed.
Long-term exposure to vapors can cause serious injury and illness.
Avoid prolonged breathing of vapors.
Keep face away from nozzle and gas tank or conditioner opening.
Keep gas away from eyes and skin.

The fuel tanks are located in the tractor's fenders. Total capacity for the fuel tanks is 12.2 U.S. gallons.

When filling the fuel tanks disengage blade engagement, place control levers in park brake position, and stop tractor engine. Clean around the fuel tank cap and remove the cap and begin filling. When finished, screw the cap on securely and wipe up any spilled gasoline. Use regular unleaded gasoline with an octane rating of 87 or higher.

IMPORTANT: Never use methanol, gasoline containing methanol, or gasohol containing more than 10% ethanol because the fuel system could be damaged. Do not mix oil with gasoline.

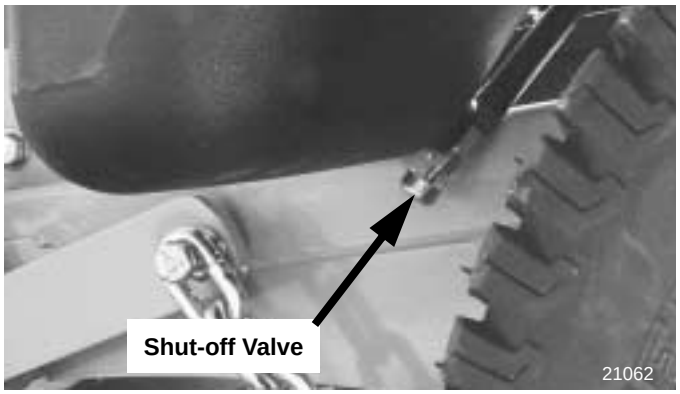
Using a fuel stabilizer/conditioner in the tractor can provide benefits such as:

1. Keeps gasoline fresh during storage of 90 days or less. For longer storage, drain the fuel tanks.
2. Cleans the engine during operation.
3. Eliminates gum-like varnish build-up in the fuel system.

IMPORTANT: Do not use fuel additives containing methanol or ethanol.

Add the correct amount of gas stabilizer/conditioner to the gas. Follow the gas stabilizer/conditioner manufacturer's directions for best results. The fuel filter (Figure 4-8A) is installed in the fuel line between fuel tanks and engine fuel pump on the rear left side of the engine. Replace filter annually or after every 100 hours of operation, whichever occurs first. For fuel filter removal refer to the engine owner's manual. When replacing the fuel filter, check the fuel line hoses for any cracks or leaks. Replace as needed.

Refer to Figure 4-7. A fuel shut-off valve is located on the outlet port of each fuel tank. Close these valves (turn clockwise) to prevent fuel flow to the engine.



Fuel Shut-Off Valve
Figure 4-7

Draining the fuel tank

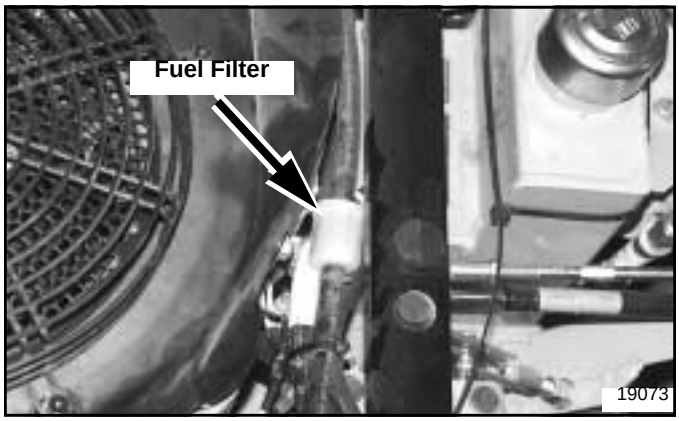
1. Park the unit on a flat surface. Stop the engine and remove the ignition key. Make sure blade engagement switch is **in the down (OFF) position.** Place control levers in the park brake position. Disconnect negative battery cable.
2. Close the fuel shut-off valve on the fuel tank to be drained.
3. Trace the fuel line from the shut-off valve to the Left/Right Fuel Tank Valve (Refer to Figure 2-3 on page 9). Loosen the hose clamp and remove the fuel line from the tee.
4. Place the end of the fuel line into a gas can or a drain pan and open the fuel shut-off valve to drain the fuel from the fuel tank.
5. When fuel tank is drained re-route the fuel line to the Left/Right Fuel Tank Valve and attach to the valve. Clamp fuel line to valve.
6. Fill fuel tank with proper grade of gasoline and open shut-off valve.

Changing fuel filters

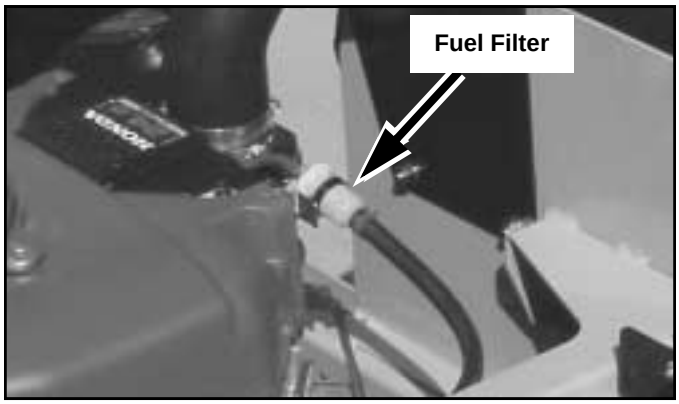
Refer to Figure 4-8A and Figure 4-8B

The fuel filter is installed in the fuel line between fuel tanks and engine fuel pump. Replace filter (Land Pride Part No. 831-031C) annually or after every 500 hours of operation, whichever occurs first.

When replacing the fuel filter, check the fuel line hoses and fuel shut-off valve grommet for any cracks or leaks. A fuel shut-off valve is located on each fuel tank (Figure 4-7). Close these valves to prevent fuel flow to the engine.



Kawasaki Engine Fuel Filter
Figure 4-8A



Honda Engine Fuel Filter
Figure 4-8B

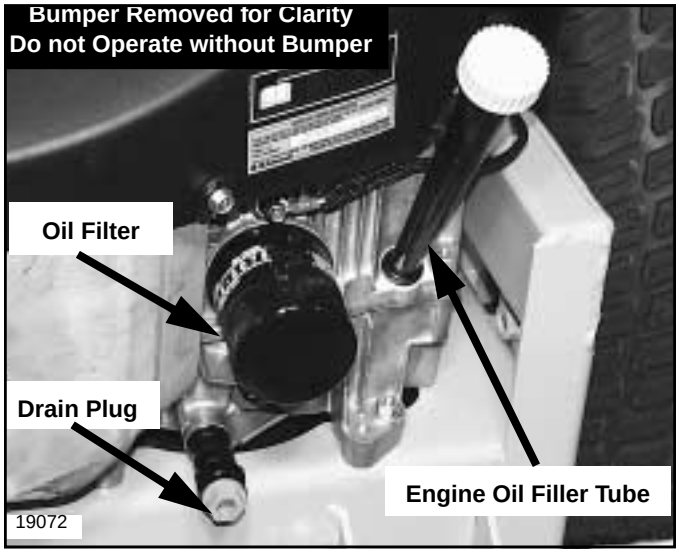
Engine Oil and Filter

Refer to Figure 4-9A and Figure 4-9B:

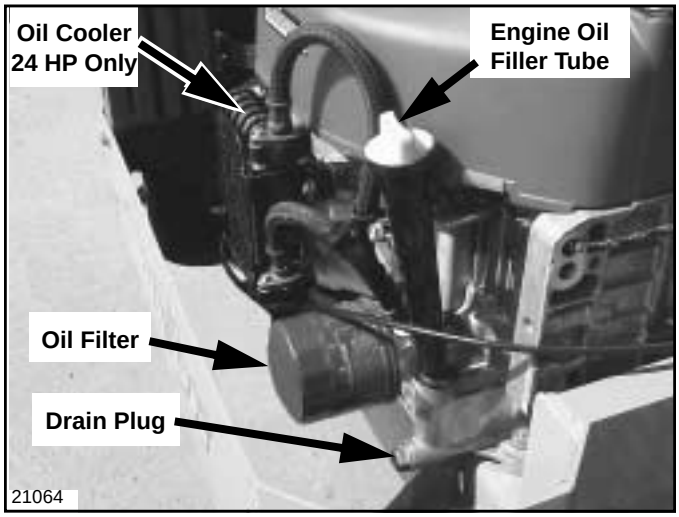
Check engine oil daily and after every 4 hours of operation. Crankcase dipstick and oil filler tube are located at the rear of the machine. Mower must be sitting level when checking oil. Refer to engine manual and maintenance schedule for oil recommendation and capacities.

Change engine oil and filter after the first 5 hours of operation and after that per the engine manufacturer's recommendations. It is recommended oil be changed more frequently if the mower is operated in extremely dirty conditions.

The oil drain and oil filter are located at the rear of the engine.



Kawasaki Engine Oil Filter, Drain & Filler Tube
Figure 4-9A



Honda Engine Oil Filter, Drain & Filler Tube
Figure 4-9B

Engine Air Filter

Refer to Figure 4-10

Perform engine air filter maintenance per Maintenance Schedule on page 23.

A specially designed dry filter is standard equipment on the Razor Pro and supplies clean combustion air to the engine.

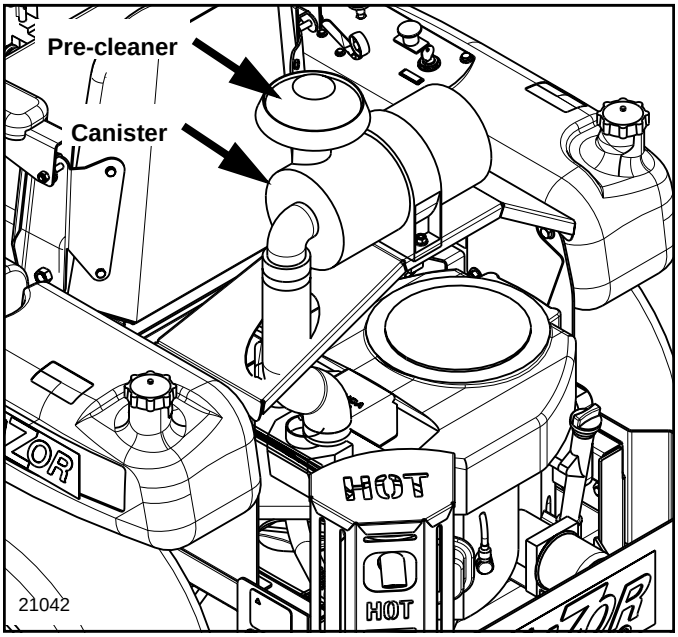


Figure 4-10

Many engine failures can be attributed to improper air cleaner servicing. Ingested dust and dirt will cause cylinder, piston and bearing damage in a few hours. Dusted engines will result from:

1. Over servicing the air filter element.
2. Improper installation of an air filter element.
3. Damaged filter, seals or canister.
4. Incorrect air filter element size and/or use of poorly designed aftermarket air filter elements.

Air cleaner servicing is an inexpensive maintenance check that can prevent costly non-warrantable premature engine damage.

Over Servicing

Over servicing occurs when an air filter element is removed for cleaning or replacement before it is necessary. Each time the filter is removed a small amount of dirt and dust could fall in the intake system. This accumulated dirt can cause a dusted engine. It only takes a few grams of ingested dirt over the normal service life of an engine to cause a dusted engine.

Do not clean element, replace with a new element only. Cleaning used air filter elements, through improper cleaning procedures, can get dust on the inside of the filter causing dirt ingestion and engine failure.

It is important to note that whenever an air filter element is cleaned by **any method**, the person or company performing the cleaning assumes responsibility for the integrity of the filter from then on. The **Donaldson warranty for air filters expires upon cleaning or servicing in any manner because the condition of the filter after servicing is completely out of their control. Therefore, on a dust ingested engine failure, there will be no warranty consideration if the air filter element has been cleaned or serviced in any manner.**

A partially dirty air filter element works better than a new element. Therefore, a dirty filter element is not bad for the engine unless it is excessively restricting the air flow and engine performance is affected. The reason is the media in the filter must be porous to allow air to pass through it. When dirty air passes through the filter, the dirt plugs some of the holes in the media and actually acts as part of the filter media. When the next round of dirt enters, the first dirt helps filter out even smaller particles making the filter more efficient at stopping dirt from entering the engine. This is referred to as barrier filtration.

Of course, at some point the filter media becomes too clogged to allow air to pass.

The mowing conditions will determine the frequency of air filter element changing.

Improper Installation

Dust must not leak past the seals on each end of the air filter element. The filter must be aligned within the canister and properly seated for an effective seal so that no dirt can enter the engine.

Damaged filter, Seals or Canister

Never bang or bump the filter element against the tire or any solid object, as dust and dirt particles will be forced through the media causing continual passing of dirt into the engine. Visually inspect the outside of the air cleaner canister periodically for external damage and replace if necessary.

Incorrect Air Filter Element

Use only the correct Donaldson air filter element, Land Pride part number 839-312C, which is designed to fit the canister properly. Land Pride air filter elements have the correct media composition, filter area, micron size and dimensions. Always use genuine Land Pride filters. Many aftermarket filters have been found to be incompatible with Land Pride's canisters and engines.

The air filter must remain intact to block passage of dirt and foreign particles from entering the engine. Being inclined to disbelieve the need for more expensive air filter elements used on gasoline engines may cause some individuals to opt for a less expensive part.

The filter element must be sufficient size and construction to withstand stresses, caused by rapid cycling of the air volume demanded by the engine, without cracking or tearing under fatigue and pressure. Therefore, Land Pride and the engine manufacturers have carefully selected a reliable filter designed to fit the needs of the engines. The filter specified is a Donaldson filter, Land Pride part number 839-312C.

Owners should be reminded that failure to use original equipment replacement parts is an alteration and will not be considered for warranty in the event of engine damage.

Engine Air Filter Service Procedure

1. Release clamps and remove element. Clean the canister with a damp cloth.
2. Before installing a new element, inspect it by placing a bright light inside and rotate the element slowly, looking for any holes or tears in the paper. Also check gaskets for cuts or tears. Do not attempt to use a damaged element which will allow abrasive particles to enter the engine.
3. Reinstall the dust cup. Make sure it seals all the way around the air cleaner body, then tighten the clamps.
4. Check all fittings and clamps periodically for tightness and inspect hoses for holes or cracks.
5. Periodically check the intake hose for signs of ingested dust. Locate and repair the source of ingested dirt.
6. Never operate a machine without an air filter installed.

General Engine Maintenance

Detailed instructions and recommendations for break-in and regular maintenance are specified in the engine operator's manual. Please refer to this manual for engine servicing, lubricating oil levels with quality and viscosity recommendations, bolt torques, etc. The engine warranty is backed by the engine manufacturer. Special attention should be paid to applicable data which will not be duplicated here.

Belt Replacement

Refer to Figure 4-11 and Figure 4-12:

Replace belts which show signs of severe cuts, tears, excessive weather checking and cracking or burns caused by slipping. Slight raveling of belt covering does not indicate failure, trim ravelings with a sharp knife.

Inspect the belt pulley grooves and flanges for wear. A new belt, or one in good condition, should never run against the bottom of the groove. Replace the pulley when this is the case, otherwise belt will lose power and slip excessively.

Never pry a belt to get it on a pulley as this will cut or damage the fibers of the belt covering.

Keep oil and grease away from belts, and never use belt dressings. Any of these will destroy the belt composition in a very short time.

WARNING!

If the pump belt fails, loss of control may occur when operating on a slope.

Deck Drive Belt

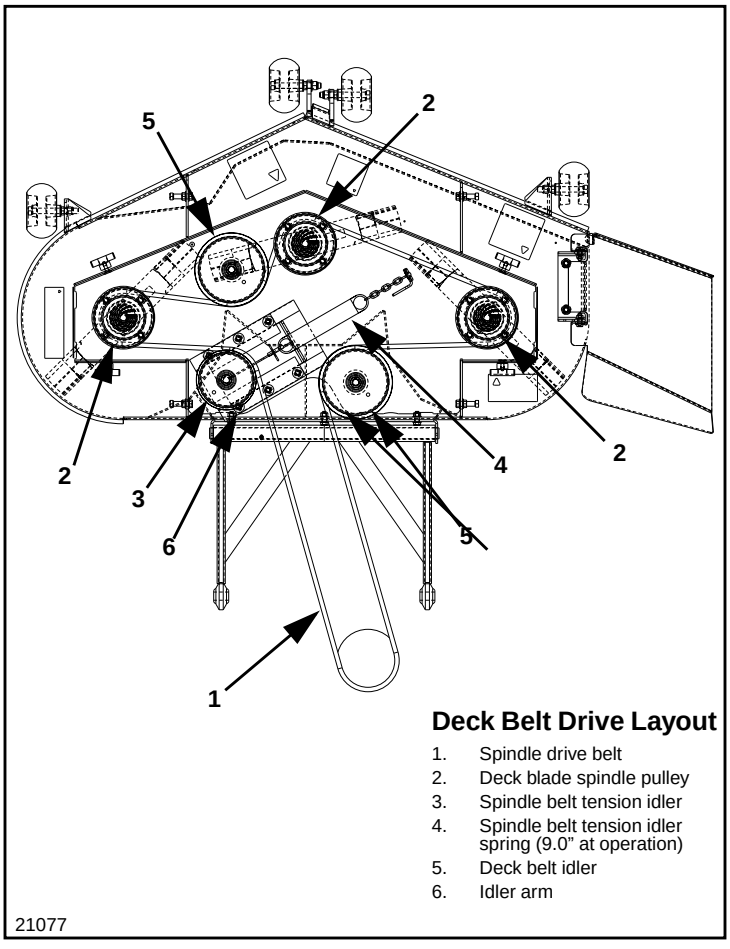
1. Park the unit on a flat surface. Stop the engine and remove the ignition key. Make sure blade engagement switch is **in the down (OFF) position.** Place control levers in the park brake position. Disconnect negative battery cable.
2. Place the deck in the lowest position.
3. Remove the deck belt covers and floor panel.
4. Release the deck belt tension by pulling on the belt tension chain and sliding the chain out of the anchor bracket slot. This will relieve the tension on the deck belt idler spring. Refer to Figure 4-11.
5. Pull the idler to the left of the machine to provide maximum belt clearance.
6. Remove the existing belt and replace with a new belt.
7. Route the new belt per Figure 4-11.
8. Re-tension the deck belt idler per the deck drive belt adjustment section on page 18.
9. Re-install the deck belt covers.
10. Re-attach the negative battery cable and floor panel.

Integrated Pump/Motor Drive Belt

Refer to Figure 4-11, Figure 4-12, and Figure 4-13

Replace hydraulic pump motor drive belt as follows:

1. Park the unit on a flat surface. Stop the engine and remove the ignition key. Make sure blade engagement switch is **in the down (OFF) position.** Place control levers in the park brake position. Disconnect negative battery cable.
2. Place the deck in the lowest position.
3. Refer Figure 3-13 on page 18 and Figure 4-11on this page. Release the deck belt tension by pulling on the belt tension chain and sliding the chain out of the anchor bracket slot.
4. Remove deck drive belt from the electric clutch pulley mounted to the engine. This belt does not need to be removed from any of the other pulleys.
5. Release the tension from the integrated pump/motor belt by pulling on the idler pulley extension spring carefully until the belt can be slide over the idler pulley. Use caution when releasing the idler pulley as there is still tension on it and it will snap back into position.



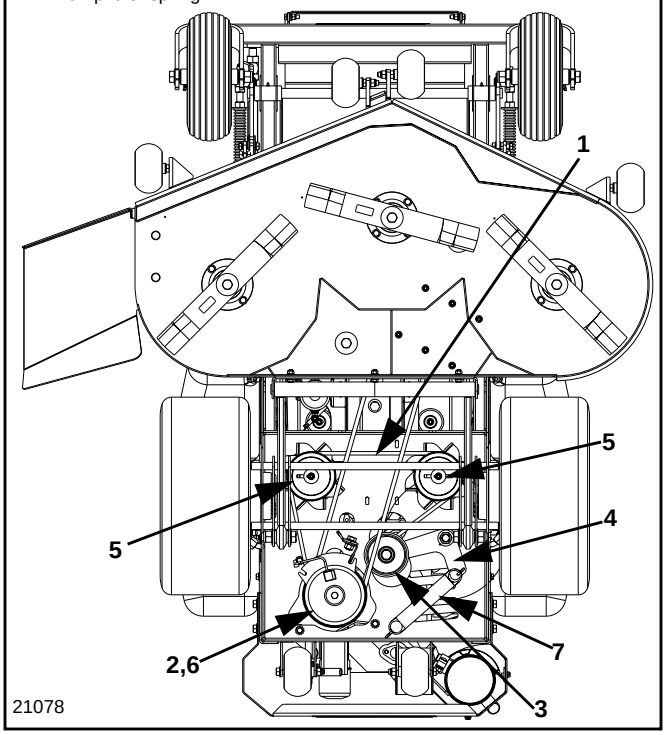
Deck Belt Drive Layout

1. Spindle drive belt
2. Deck blade spindle pulley
3. Spindle belt tension idler
4. Spindle belt tension idler spring (9.0” at operation)
5. Deck belt idler
6. Idler arm

Deck Belt Drive Layout
Figure 4-11

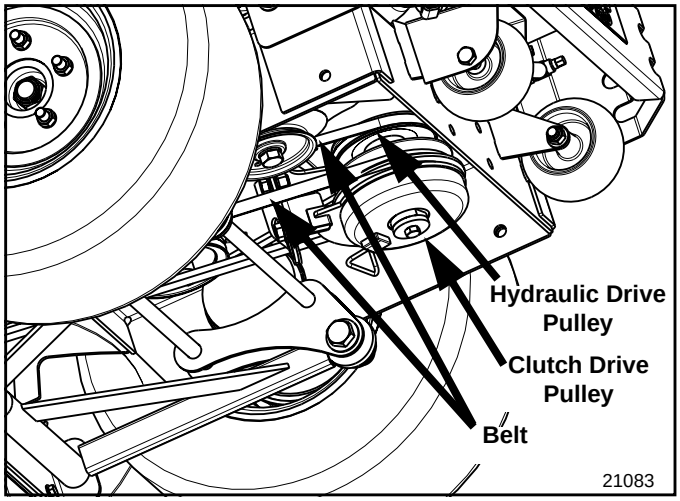
Pump Belt Layout

1. Pump belt
2. Engine pulley
3. Pump idler pulley
4. Pump idler arm
5. Pump pulley
6. Electric Deck Clutch
7. Pump idler spring



Mower Viewed from Bottom Deck
Figure 4-12

6. Slide the belt off and above the engine pulley to allow the belt to be removed from the pump/motor pulleys.



Pump/Motor Belt Removal
Figure 4-13

7. Slide the belt over and off the integrated pump/motor pulleys.
8. Remove the belt from above the engine pulley.
9. Install new belt by sliding it up and over the engine pulley. Make certain it is not in the pulley groove at this time but is above the pulley.
10. Slide the belt over the integrated pump/motor pulleys.
11. Slide the belt onto the engine pulley.
12. Pull the spring tensioned idler pulley over and slide the belt onto it. Make certain to keep fingers from getting between the belt and the pulley when the pulley is released and tension is re-established.
13. Re-install the deck drive belt on the engine electric clutch pulley and make sure it is routed properly on all of the deck pulleys.
14. Re-tension the deck belt idler per the Deck Drive Belt Adjustment instructions on page 18.
15. Re-attach the negative battery cable.

Mower Blade Maintenance

Refer to Figure 4-14 and Figure 4-15 on page 32

WARNING!

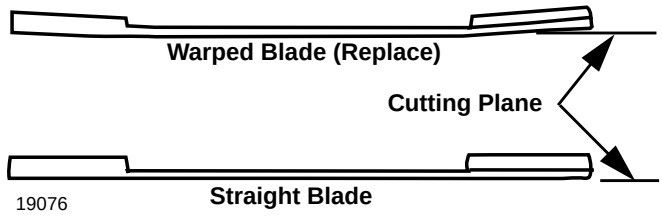
Never attempt to straighten a bent blade by heating, or weld a cracked or broken blade as the blade may break and cause serious injury.

DANGER!

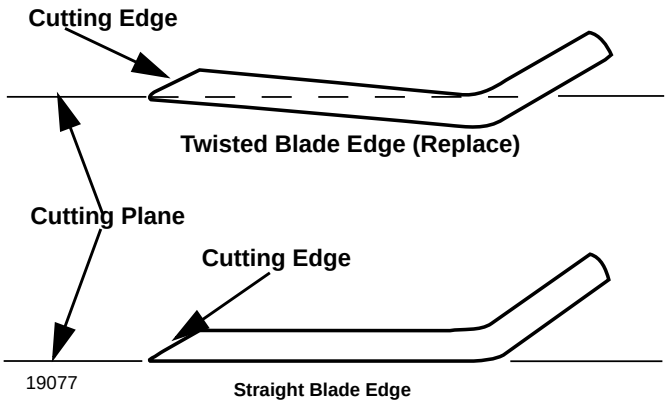
Never work with blades while engine is running or blade engagement is engaged. Always place blade engagement switch in the down (Off) position, place control levers in park position and turn engine off. Block up mower when you must work under it. Wear gloves when handling blades. Always check for blade damage if mower strikes rock, branch or other foreign object during mowing!

Check the mower blades daily, they are the key to power efficiency and well groomed turf. Keep them sharp, a dull blade will tear rather than cut the grass, leaving a brown ragged top on the grass within a few hours. A dull blade also requires more power from the engine.

Replace any blade which is bent, cracked or broken.



Comparison of Warped and Straight Blades
Figure 4-14



End View of Blades, Twisted & Straight Blades
Figure 4-15

Mower Blade Removal and Sharpening

Refer to Figure 4-16

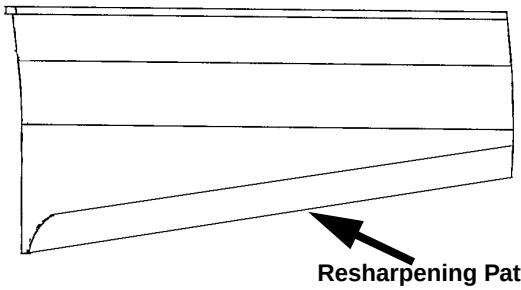
Use a 15/16” wrench to remove the 5/8” cap screw holding blade to spindle saddle from underneath.

Sharpen the blades on a grinder following resharpening pattern as shown in Figure 4-16. Touch-up sharpening can be done with a file.

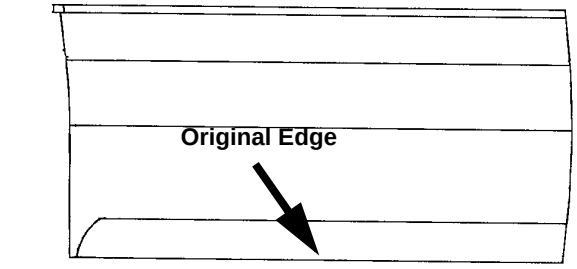
Check the blades for balance following grinding. A commercial balancing tool is available through most hardware supply stores, or balancing can be done by placing the blade on an inverted line punch or 5/8” bolt. Blade should not lean or tilt. Spin the blade slowly, blade should not wobble. If blade is out of balance, true it up before reinstalling.

Lay the blade on a flat surface and check for distortion. Replace any distorted blade.
Refer Figure 4-14 and Figure 4-15 on this page.

Do not re-use spindle bolts which have stripped, worn or undercut threads. Do not re-use spindle bolts which have stripped, worn or undercut threads. Torque bolts to 118 foot-pounds when reinstalling blades.



Do not sharpen to original pattern (below). It is easier to get a straight cutting edge following the resharpening pattern shown above.



Blade Resharpening
Figure 4-16

WARNING!

When mounting blades, rotate them after installation to ensure blade tips do not touch each other or sides of the mower.

WARNING!

Failure to correctly torque the bolt may result in the loss of the blade which can cause serious injury.

STORAGE

When storing the unit at the end of the mowing season, the following steps should be taken to ensure readiness for the next mowing season.

1. Remove all grass, dirt, and trash. Clean and touch up all scrapes with Land Pride spray paint.
2. Clean paper air filter. Replace if necessary. Wash and re-oil foam pre-cleaner.
3. Check thoroughly for any worn or damaged parts that need replacing and order them from your dealer.
4. Thoroughly lubricate machine, according to lubrication instructions.
5. Check hydraulic oil level. Add oil if necessary. Change oil and filter if not done in last 500 hours. Lubrizol additive is required. Refer to Maintenance section.
6. Block mower up so weight is off tires.

NOTE: Do not deflate tires.

7. Protect battery from freezing temperatures. Occasionally recharging battery during storage will extend battery life.
8. Perform separate engine preparation as listed below.
9. Store mower in a clean, dry place.

Preparation of Engine for Storage

When engine is to be unused for long periods, proceed as follows:

1. Run engine for a minimum of 15 minutes.
2. Drain oil from crankcase while engine is still warm.
3. Refill with fresh oil of proper viscosity.
4. Drain fuel tank and run the engine until it stops from lack of fuel. Gasoline evaporates if left in carburetor for long periods, forming gum and varnish deposits in carburetor. These deposits will cause engine flooding and loss of power.
5. Remove and replace fuel filter if not done in previous 100 hours.
6. Remove spark plugs and pour a tablespoon of engine oil into each spark plug hole. Install plugs, but do not reconnect plug leads.
7. Crank engine with starter at least a dozen revolutions to distribute oil over cylinder walls and valve mechanism.
8. Clean exterior surface of engine. Spread a light film of oil over any exposed metal surfaces of engine that are subject to corrosion.
9. Clean dirt and chaff from cylinders and fins, blower housing and muffler.
10. Check oil filler cap and fuel tank cap to make certain they are securely in place.

New Season Preparation

Before starting the mower following post season storage, the following servicing is required:

1. Clean mower, removing trash and dirt accumulation.
2. Check engine oil level.
3. Fill fuel tank with fresh gasoline. Run machine at half speed for 5 minutes, checking operation of steering control levers. Stop engine and check for oil leaks, loose fittings and so forth.
4. Tighten any bolts that have loosened and make sure all hair pins, cotter pins and clevis pins are in place.
5. Install all safety shields and review safety precautions listed in this manual.
6. Check and inflate tires to 8-10 psi.
7. Reconnect spark plug leads to spark plug.

ZRP44 & ZRP52 Razor Pro Riding Mowers (Engine Specifications)			
	ZRP44	**ZRP52**	**ZRP52**
Engine Type	Kawasaki	Kawasaki	Honda
Horsepower	19	23	24
No of Cylinders	2	2	2
Displacement	41.2 cu. in. (675cc)	41.2 cu. in. (675cc)	40.9 cu. in. (670cc)
Compression Ratio	8.1:1	8.1:1	8.3:1
Max Torque	37.0 FT. LBS @ 2400 RPM	37.0 FT. LBS @ 2400 RPM	37.5 FT. LBS @ 2500 RPM
Oil Capacity	2 US quarts	2 US quarts	1.8 US quarts
Oil Filter	Part No. 831-034C		Part No. 831-038C
Fuel Filter	Replaceable, Automotive-Type Land Pride Part No. 831-031C		Replaceable, Automotive-Type Land Pride Part No. 831-035C
Cooling	Air cooled, Fly-wheel fan		Air cooled, Fly-wheel fan with oil cooler

ZRP44 & ZRP52 Razor Pro Riding Mowers (General Specifications)		
	ZRP44	**ZRP52**
Width of Cut	44"	52"
Trim Capacity (left side)	5 1/2"	6"
Overall width	49.2”	57.2”
Tire-to-tire width:	44”	53”
Height	40”	
Length	72”	
Weight	985 lbs.	1000
Drive Tires	20 x 10.00 - 10, turf tread	
Front Tires	13 x 5.00 - 6, no tread	
Starter	12-volt (.8 KW), solenoid shift positive engagement.	
Ignition	Electronic	
Charging System	12-volt, 15 amp	
Governor	Mechanical	
Fuel	Unleaded gasoline with octane rating of 87 or higher	
Fuel Capacities	12.2 US GAL	
Traction Drive Type	Dual Hydrostatic Transmission	
Hydraulic Drive Oil	10W40 Motor oil	
Hydraulic Oil Capacity	2 US GAL (7.57 L)	
Hydraulic Pumps	Two variable displacement, axial piston type.	
Hydraulic Lines	Stainless steel high pressure lines with Parker Seal-Lok™ O-Ring Face Seal Fittings.	
Hydraulic Filter	40 micron, Replaceable spin-on type (Part No. 831-030C)	
Final Drive	White CE 12 direct-drive high-torque wheel motors for each drive wheel.	

ZRP44 & ZRP52 Razor Pro Riding Mowers (General Specifications)		
	ZRP44	**ZRP52**
Hydraulic Pump Drive	V-belt drive from engine crankshaft	
Ground Speed	Forward Transport: 0-13 MPH (0-20.92 KPH)	
	Forward Mowing: 0-10 MPH (0-16.09 KPH)	
	Reverse Movement: 0-7 MPH (0-11.27 KPH)	
Steering Type	Twin lever steering provides independent control of each drive wheel.	
Twin Lever Steering Controls	Speed, forward, reverse, brake, and turns.	
Steering Turning Radius	True zero degree. Turns within its own length with counter-rotating independent drive wheels	
Brake Service	Hydrostatic dynamic braking	
Parking	Automotive-style drum brakes. Integral park brakes are automatically engaged When steering levers are placed in neutral.	
Mower Drive	Single V-belt with electric clutch and spring tension idler pulley	
Safety Features	Operator presence system connected to deck and drive clutches. Stabilizer rollers rear of tractor.	
Seat	Molded-vinyl seat with armrests and fore and aft adjustment. Optional deluxe cushion seat	
Mainframe Construction	1 1/2" x 2" x .1/8” rectangular steel tubing.	
Drive Motor Mount	.179” welded steel	
Caster Wheels	Mounted with roller bearings on each wheel.	
Front Caster Forks	.3/8” steel.	
Deck Thickness	11 Gauge with 11 gauge doubler deck plate	
Deck Trim Edges	1” x 3/8”	
Deck Lift	Foot-operated deck height adjustment. Pin for setting height, transport position.	
Hand Operated Controls	choke, throttle, ignition switch, electric mower clutch and Integrated parking brakes.	
Indicators	Hour meter engine warning light.	
Cup Holder	Two cup holders molded into the left side fuel tank. Accommodates nearly any cup size including Big Gulp.	
Cutting Heights	Foot-operated deck height adjustment. Pin for setting height, transport position. Height adjustment in 1/4" increments from 1 1/2” to 4 1/2”	
Mowing Blades	Heavy-duty, heat-treated, high-lift steel blades	
	.20" x 2 1/2" x 15.7"	.20 x 2 1/2” x 18.3”
Blade Tip Speed	16,100 FPM	18, 300 FPM
Blade Drive	Single V-belt drive to all three spindles with spring tension idler pulleys and electric clutch.	
Spindles	Machine aluminum housing, 1" diameter high carbon steel shafts and sealed ball bearings.	
Flotation	Suspended mower floats on four spring-assisted chains. 4 anti-scalp wheels are standard.	

ACCESSORIES

Mulch Kit

Recycles clippings under deck allowing clippings to be cut and recut, then discharged down into the grass. Reduces handling of clippings, improves appearance, and recycles nutrients back to the soil.

ZRP44 & ZRP52 Razor Pro Riding Mowers	
Features	**Benefits**
44” or 52” Cutting width	Sized and priced right for residential owners.
Mid-mount deck design	Mid-mount design puts the deck closer to the operator’s line of sight for a more efficient and precise operation.
Compact size	Enhances mowing maneuverability, as well as fitting on trailers or storing more efficiently.
Drive tire stance	Narrow width (ZRP44 = 44”, ZRP52 = 53”) allows for tight turns in corners, yet gives a very stable platform for the operator.
Steering levers	Dual steering levers which control each drive wheel, have a shape and position that is very user friendly, hand and arm fatigue are greatly minimized.
Reinforced Deck	Reinforced front edge where most of the punishment happens.
Frame	Extra strong welded and formed frame design with 1 1/2” x 2” x .125” tubing.
Floating deck design	Deck has chain suspension which offers excellent flotation over uneven terrain.
Deck height adjustment	Height is changed by a spring-loaded foot operated lever and pin. Easier than hand levers to push and faster than waiting on an electric actuation.
Anti-scalp rollers - 4	Front middle and front corners to keep scalping to a minimum.
Cutting height	1 1/2” to 4 1/2” Range in 1/4” increments to cut any type of turf grass.
Tires	Wide tires offer excellent ground flotation. Heavy wheel forks take abuse.
High blade tip speed	44: 16,100 fpm; 52: 18,300 fpm Assures a good finish cut.
High lift blades	Heavy-duty high lift blades are .25” thick to handle the wear, with a high lift design to stand the grass up before cutting.
1” Blade spindles	1” Blades spindles with sealed ball bearings handle heavy shock loads.
Single belt drive	Single belt design offers easier maintenance over multiple belt designs, less expensive to maintain.
Electric clutch control	Easy and smooth engagement of the mower blade drive system.
Parking Brake & Safety Lockout	Parking brakes are engaged when steering levers are placed in neutral, does not require a separate operation to place in neutral. One less thing to look for if mower does not start.
Drive	Each rear drive wheel has an integrated hydrostatic pump & drive motor.
Electric start	Easily starts with the turn of a key.
Integrated fan blades	Pumps stay cool.
12.2 gallon fuel capacity	Less down time.
Easy engine maintenance	Engine is mounted so that all of the maintenance items can be serviced from the rear of the mower vs. the side.
Seat Options	Adjustable molded seat incorporates a high back and armrests to give adequate comfort for the long jobs or Deluxe Cushion seat for additional suspension over rough terrain.
Molded-in cup holders	Easy to reach cup holders fit a wide variety of cups, and are in easy access to driver.

The majority of operating problems that occur with a system can be traced to improper adjustments or delayed service. A consistently applied preventative maintenance program, as outlined in the maintenance section of this manual, will prevent many problems. The following chart is designed to help you locate a problem by suggesting probable causes and the recommended solutions.

Symptoms	Probable Causes	Suggested Remedies
Starting motor does not crank	Control handles not in park brake position (out) or switch not adjusted	Place control handle in park brake position or re-adjust switch
	Blade Engagement switch engaged	Disengage blade switch
	Weak or dead battery	Recharge or replace
	For additional causes	See engine manual
Engine cranks but does not start	No fuel or line plugged	Fill f or replace line
	Numerous	See engine manual
	One fuel tank is empty	Switch Left/Right tank valve. Open shut-off valves on bottom of tanks by turning counter clockwise. See Figure 4-7 on page 28
Engine: Runs with continuous misfiring or engine runs unevenly or erratically	Numerous	See engine manual
Loss of power or system will not operate in either direction	Restrictions in air cleaner	Service air cleaner
	Internal interference or leakage in Hydro-Drive	See your dealer
	Internal interference or leakage in wheel motor	See your dealer
	Insufficient hydraulic oil supply	Check oil level in reservoir
		Have dealer check hydraulic drive
	Poor compression	See your dealer
	Steering linkage needs adjustment	Adjust linkage
	Air in system	Check filter & fittings
	For additional causes	See engine manual
Overheating	Air intake screen or cleaning fins clogged	Clean screen and fin
	For additional causes	See engine manual
Low oil pressure	Low oil level	Add oil
	Oil diluted or too light	Change oil and check for source of contamination
High oil consumption	Numerous	See your dealer
Mower jerky when starting or operates in one direction only	Steering control linkage needs adjustment	Adjust linkage
	Hydraulic pump or wheel motors faulty	See your dealer

Continued on next page

Symptoms	Probable Causes	Suggested Remedies
Hydraulic system operates hot (Oil in reservoir smells rancid)	Low hydraulic oil level	Fill reservoir
	Hydraulic pump faulty	See your dealer
Mower creeps when steering control levers are in neutral	Steering linkage needs adjustment	Adjust linkage
Mower circles or veers in one direction	Steering linkage needs adjustment	Adjust linkage
	Wheel motors faulty	See your dealer
	Hydraulic pump faulty	See your dealer
Mower creeps when parking brake engaged	Steering linkage needs adjustment	Adjust steering linkage
	Brakes need adjustment	Adjust parking brakes
Oil Light is on when engine is running	Engine oil level low	Fill engine oil to required level

Torque Values Chart for Common Bolt Sizes

Bolt Size (Inches)	Bolt Head Identification					
	Grade 2		Grade 5		Grade 8	
in-tpi[1]	N · m[2]	ft-lb[3]	N · m	ft-lb	N · m	ft-lb
1/4" - 20	7.4	5.6	11	8	16	12
1/4" - 28	8.5	6	13	10	18	14
5/16" - 18	15	11	24	17	33	25
5/16" - 24	17	13	26	19	37	27
3/8" - 16	27	20	42	31	59	44
3/8" - 24	31	22	47	35	67	49
7/16" - 14	43	32	67	49	95	70
7/16" - 20	49	36	75	55	105	78
1/2" - 13	66	49	105	76	145	105
1/2" - 20	75	55	115	85	165	120
9/16" - 12	95	70	150	110	210	155
9/16" - 18	105	79	165	120	235	170
5/8" - 11	130	97	205	150	285	210
5/8" - 18	150	110	230	170	325	240
3/4" - 10	235	170	360	265	510	375
3/4" - 16	260	190	405	295	570	420
7/8" - 9	225	165	585	430	820	605
7/8" - 14	250	185	640	475	905	670
1” - 8	340	250	875	645	1230	910
1" - 12	370	275	955	705	1350	995
1-1/8" - 7	480	355	1080	795	1750	1290
1 1/8" - 12	540	395	1210	890	1960	1440
1 1/4" - 7	680	500	1520	1120	2460	1820
1 1/4" - 12	750	555	1680	1240	2730	2010
1 3/8" - 6	890	655	1990	1470	3230	2380
1 3/8" - 12	1010	745	2270	1670	3680	2710
1 1/2" - 6	1180	870	2640	1950	4290	3160
1 1/2" - 12	1330	980	2970	2190	4820	3560

Bolt Size (Metric)	Bolt Head Identification					
	5.8 Class 5.8		8.8 Class 8.8		10.9 Class 10.9	
mm x pitch[4]	N · m	ft-lb	N · m	ft-lb	N · m	ft-lb
M 5 X 0.8	4	3	6	5	9	7
M 6 X 1	7	5	11	8	15	11
M 8 X 1.25	17	12	26	19	36	27
M 8 X 1	18	13	28	21	39	29
M10 X 1.5	33	24	52	39	72	53
M10 X 0.75	39	29	61	45	85	62
M12 X 1.75	58	42	91	67	125	93
M12 X 1.5	60	44	95	70	130	97
M12 X 1	90	66	105	77	145	105
M14 X 2	92	68	145	105	200	150
M14 X 1.5	99	73	155	115	215	160
M16 X 2	145	105	225	165	315	230
M16 X 1.5	155	115	240	180	335	245
M18 X 2.5	195	145	310	230	405	300
M18 X 1.5	220	165	350	260	485	355
M20 X 2.5	280	205	440	325	610	450
M20 X 1.5	310	230	650	480	900	665
M24 X 3	480	355	760	560	1050	780
M24 X 2	525	390	830	610	1150	845
M30 X 3.5	960	705	1510	1120	2100	1550
M30 X 2	1060	785	1680	1240	2320	1710
M36 X 3.5	1730	1270	2650	1950	3660	2700
M36 X 2	1880	1380	2960	2190	4100	3220

[1] in-tpi = nominal thread dia. in inches-threads per inch

[2] N· m = newton-meters

[3] ft-lb= foot pounds

[4] mm x pitch = nominal thread dia. in millimeters x thread pitch

Torque tolerance + 0%, -15% of torquing values. Unless otherwise specified use torque values listed above.

Tire Inflation Chart

Tire	Inflation PSI
Drive Wheels	8-12
Gauge Wheels	8-12

NOTES:

Warranty

Land Pride warrants to the original purchaser that this Land Pride product will be free from defects in material and workmanship beginning on the date of purchase by the end user according to the following schedule when used as intended and under normal service and conditions for personal use.

Overall unit: 2 years or 1200 hours limited warranty on parts and labor, whichever comes first.

Engine: 2 years limited warranty through Engine manufacturer.

Hydraulic Wheel Motors and Pumps: 2 years on Parts and Labor.

Front Edge of Mower Deck: Limited warranty against all defects in the deck which results in the front edge of the deck being bent into the blades for the entire length of ownership by the original purchaser.

Frame: Frame breakage through the entire length of ownership by the original purchaser.

Blade Spindle: 3 years or 1200 hours Parts and Labor.

Front Gauge Wheel Yoke Bearings: 3 years or 1200 hours Parts and Labor

Battery: 1 year limited warranty.

Rental Units: Limited warranty on all materials and workmanship for a period of 90 days.

Belts, blades, and tires are considered wear items.

Filters and Plugs are considered maintenance items.

This Warranty is limited to the replacement of any defective part by Land Pride and the installation by the dealer of any such replacement part, and does not cover common wear items such as blades, belts, tines, etc. Land Pride reserves the right to inspect any equipment or parts which are claimed to have been defective in material or workmanship.

This Warranty does not apply to any part or product which in Land Pride's judgment shall have been misused or damaged by accident or lack of normal maintenance or care, or which has been repaired or altered in a way which adversely affects its performance or reliability, or which has been used for a purpose for which the product is not designed. Misuse also specifically includes failure to properly maintain oil levels, grease points, and driveline shafts.

Claims under this Warranty must be made to the dealer which originally sold the product and all warranty adjustments must be made through such dealer. Any action for breach of warranty must be commenced within 25 months following delivery in non-rented application, and within 120 days following delivery in rented application.

This Warranty shall not be interpreted to render Land Pride liable for damages of any kind, direct, consequential, or contingent to property. Furthermore, Land Pride shall not be liable for damages resulting from any cause beyond its reasonable control. This Warranty does not extend to loss of crops, any expense or loss for labor, supplies, rental machinery or for any other reason.

No other warranty of any kind whatsoever, express or implied, is made with respect to this sale; and all implied warranties of merchantability and fitness for a particular purpose which exceed the obligations set forth in this written warranty are hereby disclaimed and excluded from this sale.

This Warranty is not valid unless registered with Land Pride within 30 days from the date of purchase by the end user.

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